

CONFIGURATION MIGRATION TOOL

FortiConverter User Guide

VERSION 5.3.0

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FortiConverter 5.3.0 User Guide

1st Edition

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Introduction

This document shows how to install and use FortiConverter.

FortiConverter is designed to help you migrate your network to Fortinet network security solutions, significantly reducing workload and minimizing errors. FortiConverter translates configuration files from other vendors' firewall products into a valid FortiGate or FortiManager configuration file. Because the output uses command line syntax, it can either be uploaded as a configuration file or piped to the CLI.

For additional assistance, please contact forticonverter@fortinet.com.

Submitting configuration files and retrieving private builds via SCP

FortiConverter customers can securely submit firewall configuration files to Fortinet Engineering using Fortinet's SCP (Secure CoPy) service.

You can use the same service to retrieve private builds that fix conversion logic, if required.

Because this account has many restrictions, Fortinet recommends that you use a command-line SCP client to transfer files. For example, [PSCP](#) provides a suitable SCP client for Windows users.

To upload a file

1. Create a zip archive with a name that is unique to your case (for example, your FortiConverter serial number).
2. Add your files to the zip archive, even if you have only one file to send.
3. Use your SCP client to connect to the secure server and upload the file using the following settings:

Server	ftp.apsecure.com
Port	2222
User	fcon-incoming
Password	incoming

For example, for PSCP:

```
.\pscp.exe -P 2222 fcon0123456789.zip fcon-incoming@ftp.apsecure.com:.
```

To download a file

1. Obtain the name of the file to retrieve from Fortinet Engineering (for example, `fcon-build-0123456789.exe`).
2. Use your SCP client to connect to the secure server and download the file using the following settings:

Server	ftp.apsecure.com
---------------	------------------

Port	2222
User	fcon-outgoing
Password	outgoing

For example, for PSCP:

```
.\pscp.exe -P 2222 fcon-outgoing@ftp.apsecure.com:fcon-build-0123456789.exe .
```

Supported vendors & configuration objects

FortiConverter can translate configurations from the following vendors and platforms.

In some cases, FortiConverter cannot translate some parts of the configuration because of dependencies or unsupported syntax and you must manually convert them.

If the number of objects exceeds the maximum valid length for FortiGate or FortiManager, FortiConverter trims them.

Vendor	Models	Versions	Convertible objects
Alcatel-Lucent	Brick	ALSMS v9.x	Addresses & Address Books Interfaces (physical, logical, loopback, PPPoE) Partitions Services & Service Books Static routes Zone rule set
	SmartCenter	NG FP1 (4.0) to NGX R77	Addresses & Address Groups Interfaces (Physical, Logical, Loopback, PPPoE) Local Users & Groups NAT (Automatic & Rule) Negate Cell Policies (rulebases.fws) RADIUS, TACACS+, & LDAP
Check Point	Provider-1	NGX R65 to R77	Rules Schedules Services & Service Groups Static routes VPN (IPSec)

Vendor	Models	Versions	Convertible objects
Cisco	PIX ASA FWSM	4.x to pre-8.3, 8.3 and later, 9.x	ACLs Addresses & Address Groups DHCP Servers DNS Servers
	IOS	10.x to 12.x 15.x	Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) IP Pools Local Users & Groups NAT (including Object NAT and Double NAT) RADIUS, TACACS+, & LDAP Services & Service Groups Static Routes Time Ranges VPN (IPSec, PPTP/L2TP, EZVPN)
	IOS XR	4.x, 5.x, 6.x	Addresses & Address Groups & FQDNs Interfaces IP Pools Policies
	Nexus	5.2, 6.x, 7.x	Services & Service Groups Static Routes

Vendor	Models	Versions	Convertible objects
Juniper	SSG/ISG	ScreenOS 5.x, 6.x	Addresses & Address Groups & FQDNs DHCP Servers & Clients & Relays Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) Static Routes Services & Service Groups Policies VIPs/MIPs NAT IP Pools VPN (IPSec, PPTP/L2TP) Local Users & Groups RADIUS & LDAP Zones
	SRX	Junos OS 10.x to 12.x	Addresses & Address Groups & FQDNs DHCP Servers & Client & Relay Interfaces (Physical, Logical, Loopback, PPPoE, Tunnel) IP Pools Local Users & Groups NAT Policies RADIUS & LDAP Services & Service Groups Static Routes VIPs/MIPs VPN (IPSec, PPTP/L2TP) Zones
	MX	Juno OS 10.x to 12.x	Addresses & Address Groups & FQDNs Interfaces IP Pools Policies Services & Service Groups Static Routes
McAfee	Sidewinder	7.x, 8.x	Addresses & Address Groups & FQDNs Interfaces IP Pools Policies Services & Service Groups Static Routes

Vendor	Models	Versions	Convertible objects
Palo Alto Networks	PA	PAN-OS 1.x to 6.x	Addresses & Address Groups & FQDNs Interfaces Local Users & Groups NAT (partial) Policies Schedules Static Routes Services & Service Groups Zones
SonicWall	NSA Series	SonicOS Enhanced 5.x	Addresses & Address Groups & FQDNs DHCP Servers & Clients & Relays Interfaces (Physical, Logical, Loopback, PPPoE) Local Users & Groups NAT Policies Schedules Services & Service Groups Static Routes Zones

General limitations

FortiConverter is a migration tool, not a migration service. It is designed to be used as part of a properly planned migration process.

Supported FortiOS conversions

FortiConverter 5.0 supports conversions from other vendors to FortiOS 5.4 and 5.6 only.

FortiGate to FortiGate conversions support conversion from FortiOS 4.3, 5.0, 5.2 to FortiOS 5.0, 5.2, 5.4.

Creating final configurations

While FortiConverter significantly shortens the conversion process, a final, useable configuration requires you to review and audit the FortiConverter output conversion. FortiConverter's tuning capability can help with the review and audit process.

While you can use FortiConverter's tuning capability to review and fix errors in the conversion, it is not designed to perform significant reconfiguration.

Incomplete routing information

In some cases, not all the routing information that FortiConverter requires to make a decision about a policy interface is available. In these cases, it uses the 'any' interface.

Double NAT

For Check Point conversions, the FortiConverter conversion engine uses a manual rule to convert configurations that apply source NAT and destination NAT to the same policy (called double NAT).

For all other conversions, FortiConverter NAT merge does not support double NAT. Instead, FortiConverter applies source NAT in the conversion and you complete the configuration by using the tuning page to manually apply destination NAT.

IPsec support

FortiConverter converts IPsec configurations to route-based or policy-based IPsec depending on which one the source configuration is closest to. Users can enable Route-based IPSec for Cisco ASA, PIX, FWSM, and Check Point conversions.

FortiGate conversion

FortiConverter firewall configuration migration tool is primarily for third-party firewall configuration migration to FortiOS—for routing, firewall, NAT, and VPN policies and objects. It also supports FortiGate migration, but does not support all the functionality of FortiOS.

Licensing

The trial version of FortiConverter provides full conversion functionality for FortiGate-to-FortiGate conversions.

For all other conversions, you can complete a conversion and view the results in the tuning page. CLI and API output are disabled until you upload the full license.

After you purchase and upload a license, FortiConverter is unlocked and full functionality is enabled for all supported vendors. Your paid license entitles you to any new versions of FortiConverter that Fortinet releases until the license expires, as well as direct engineering support.

FortiConverter requires an Internet connection to verify its license. You can use the software for up to 30 days without validating the license online, and you can configure FortiConverter to contact the licensing server via a web proxy.

For more information, see ["Uploading the license" on page 17](#)

System requirements

FortiConverter requires one of the following operating systems:

- Microsoft Windows 10
- Microsoft Windows 8 (32-bit or 64-bit)
- Microsoft Windows 7 (32-bit or 64-bit)
- Microsoft Windows Server 2008 (32-bit or 64-bit)

In addition, FortiConverter requires .NET Framework 4.0. If it is not already installed on your computer, the FortiConverter installer prompts you to download and install it.

A web browser is required to view conversion reports.

An Internet connection is required to verify the software license.

What's new

The following list contains features that are new or enhanced since FortiConverter 5.2.

FortiConverter 5.3

- **Conversion support**—FortiConverter now includes explicit support for route-based IPsec for Cisco PIX, ASA, FWSM, and Check Point conversions. When enabled, all IPsec configurations are converted to route-based IPsec.
- **FortiOS migration**—FortiConverter now supports migrations to FortiOS 5.6.
- **Check Point support**—FortiConverter now features additional support for Check Point Traditional Mode IPsec.
- **McAfee Sidewinder**—FortiConverter now supports McAfee Sidewinder version 8.

FortiConverter 5.2

- **McAfee Sidewinder**—FortiConverter now supports conversions from McAfee Sidewinder 7.x to FortiOS 5.2 and 5.4.
- **Cisco IOS XR**—FortiConverter supports conversions of ACLs for Cisco IOS XR release 4.x through 6.x to FortiOS 5.2 and 5.4.
- **Cisco Nexus**—FortiConverter now supports conversions of ACLs for Cisco Nexus release 5.2, 6.x, 7.x to FortiOS 5.2 and 5.4.
- **Juniper MX**—FortiConverter now supports conversions of ACLs for Juniper MX release 10.x through 12.x to FortiOS 5.2 and 5.4.
- **NAT merge policy IDs**—NAT merge policies no longer have prefixes starting with 0. These were incorrectly interpreted by FortiOS and FortiManager. Now, for a firewall policy ID 10001, the first NAT intersection will be 110001, the second 210001, and so on. Previously they would have been 00110001 and 00210001.

Installing the software

To download the FortiConverter installer from the Fortinet Technical Support website, go to:

<https://support.fortinet.com>

To install FortiConverter

1. Double-click the FortiConverter installer executable (.exe).

If your computer does not have Microsoft .NET Framework 4.0, you are prompted to install it.

2. To proceed with the installation, click **Yes** and then download the software framework from Microsoft's web site.
3. To continue the installation, read the license agreement, select **I accept the terms of the License Agreement**, and then click **Next**.
4. If you want to install the program in a location that is different from the default one, click **Browse** and select the directory.
5. Click **Next**.
6. Select the Start Menu folder that you want to add the program shortcuts to, and then click **Install**.
7. Click **Finish** to exit the FortiConverter installer.

Uploading the license

By default, FortiConverter is installed with a limited trial license. If you have purchased an full license, upload it to unlock the complete feature set.

To purchase a license, use your usual Fortinet sales channel.

For other licensing issues, see "[Licensing](#)" on page 126 for more information.

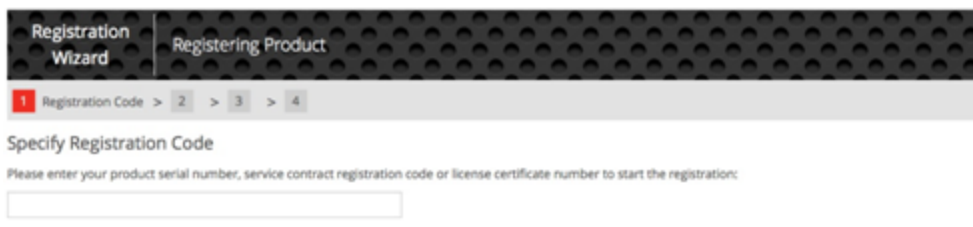
To activate the license

1. To start FortiConverter, double-click its shortcut.
2. On the home page, click **More**.
3. Click **About FortiConverter**.
4. On the License tab, copy the **Hardware ID** value to the clipboard.
5. Ensure you have purchased a license, then sign in to the Fortinet Technical Support web site at the following location:

<https://support.fortinet.com/>

Registration uses a simple, four-step wizard that is commonly used for many Fortinet products.

6. On the first page of the wizard, enter the registration code you received when you purchased your FortiConverter product.



7. For step 2 of the registration wizard, enter the **Hardware ID** you copied earlier, an optional description, and select the name of your Fortinet partner from the list.

Contract Registration | Registering FortiConverter | Contract Number : 31000010135

1 Registration Code > **2 Registration Info** > 3 Agreement > 4 Verification > 5 Completion

Specify Fortinet Registration Information

Please specify your hardware id

Hardware ID:*

To help you identify this product, you may enter a description here

Product Description:

Please specify your Fortinet Partner or Reseller helped you with this product

Fortinet Partner:*

8. After you agree to the license terms, the final page of the wizard (step 5) allows you to download the license file (.lic file).

Contract Registration | Registering FortiConverter | Contract Number : 31000010135

1 Registration Code > 2 Registration Info > 3 Agreement > 4 Verification > **5 Completion**

Registration Completed

Thank you for choosing Fortinet product. Your registration process has successfully completed. Please be aware that the registration information may not reflect on your product immediately, a delay (up to 4 hours) can occur.

Product Info

General

Product Model: FortiConverter
 Serial Number: FCON010000010135
 Registration Date: 2014-01-24
 Description: N/A
 Partner: Fortinet
 License File: [License File Download](#)

9. In FortiConverter, on the **License** tab, click **Select** and navigate to the .lic file to select it.
10. Click **Activate**.
 FortiConverter validates the license file and changes your **Activation Status** from **Trial** to **Activate**.
 Your license is valid for all FortiConverter software updates released until the date specified by **License Expiry Date**.
 After the license is activated, to access the expiry information, go to the **License** tab.

License validation via web proxy

You can configure FortiConverter to use an explicit (non-transparent) web proxy server to connect to Fortinet's online licensing servers.

FortiConverter connects to the proxy using the HTTP CONNECT method, as described in RFC 2616.

1. On the home page, click **More**.
2. Click **About FortiConverter**.
3. On the Proxy tab, select **Enable Proxy** and then specify the IP address and the port of the web proxy to use.
4. Click **Apply**.

Conversion

FortiConverter provides wizards that convert configuration files from a specific vendor to FortiGate or FortiManager configuration files.

Where possible, use tools provided by the source firewall to optimize the source configuration before you convert it.

For example, when you move applications in or remove them from your environment, the hard-coded firewall policies associated with them may remain in the configuration, even if the policies are no longer used. Removing these old items helps you successfully convert the configuration.

After you input information about your previous vendor's configuration files, you can preview and fine-tune the conversion before you output the final FortiGate or FortiManager configuration file.



The administrator password is **not** set on the new configuration.

For FortiGate conversions, maintainer account settings are not modified. If your original FortiGate has maintainer access disabled, you must re-enable access in the new device.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.



Reset any IPsec PSKs after conversion. Some pre-conversion PSK configurations are not compatible with post-conversion PSK algorithms and will cause errors if not reset.

Downloading the source configuration files

Before you start the conversion wizard, download your existing configuration to the computer where FortiConverter is installed. Procedures vary by vendor.

Some vendors divide the configuration into multiple files, so make sure that you download all files.

Alcatel-Lucent

FortiConverter provides a Perl script for downloading Alcatel-Lucent Brick configurations.

To access the Alcatel-Lucent configuration download script

1. On the FortiConverter home page, click the Alcatel-Lucent square.
2. On the Start Options page, click **Next**.

If you are using the wizard to retrieve the download script only, use the default settings for this page. You can restart the wizard later after you have the file and are ready to perform the conversion with the appropriate settings.

3. On the Source Configuration Selection page, click **How to get configuration**.

The Windows folder that contains the Perl script and the documentation for using it are displayed. Follow the instructions to run the Perl script and output the source configuration as a set of directories.

Check Point

To acquire the configuration, download the following files. In most cases, you download the object and policy definitions from the management system:

- Object definitions — 'objects_5_0.C' (Check Point NG/NGX) or 'objects.C' (Check Point 4.x) contain the firewall's object definitions. To convert from Provider-1, 'mcss.C' contains the MDS hierarchy files.
- Policy and rule definitions — '*.w' or 'rulebases_5_0.fws'. The file name is <rule>.W (default Standard.W). or rulebases_5_0.fws. They are located in the directory "[SmartCenter] : \$FWDIR/conf".
- Route information (optional) — Helps FortiConverter to correctly interpret the network topology being converted. To get this data, enter the `route print` command on the firewall node, and then copy and paste the output into a plain text file. Codes in the output indicate if the route is a directly connected interface, a host route, a network route, and so on. The output varies by the platform.
- User and user groups file (optional) — fwauth.NDBx

Ensure the configuration is in a text format (for example, in plain text or XML). FortiConverter cannot use binary files.

File	File name	Path
Object definitions	objects_5_0.C (Checkpoint NG/NGX)	\$FWDIR/conf
	objects.C (Checkpoint 4.x_)	
	mcss.C (Provider-1)	\$MDSDIR/conf/mdsdb
Policy and Rule definitions	rulebase_5_0.fws	\$FWDIR/conf
	[package name].W	
Route information	NA	Save output of route print command from firewall
User and User Group file	fwauth.NDBx	\$FWDIR/conf/
		or
		\$FWDIR/database/

Cisco

To acquire the configuration, enter the `show running-config` command, and then paste the output into a plain text file.

Fortinet

In most cases, when you change FortiGate platforms, your new FortiGate has a different physical interface layout and does not support the FortiOS version that your old FortiGate is running (for example, C series to E series migrations).

To build the configuration file for the new appliance, FortiConverter requires the configuration that your source FortiGate is running and the default configuration of your target FortiGate. Alternatively, when you migrate to a new FortiGate model that runs FortiOS 5.4.1 or higher (for example, an E-series device), you can use the FortiOS API to retrieve the default configuration of your target FortiGate.

If you intend to use VDOMs on the target device, ensure VDOM admin is enabled in the default configuration.

Use the **Backup** option on the Status Dashboard System Information widget to download the configuration.

System Information	
HA Status:	Standalone [Configure]
Host Name:	FWF60E4Q16000308 [Change]
Serial Number:	FWF60E4Q16000308
Operation Mode:	NAT
Inspection Mode:	Proxy-based [Change]
System Time:	Tue Oct 4 16:52:37 2016 (pool.ntp.org) [Change]
Firmware Version:	v5.4.1,build1064 (GA) [Update]
System Configuration:	[Backup] [Restore] [Revisions]
Current Administrator:	admin [Change Password] /1 in Total [Details]
Uptime:	8 day(s) 1 hour(s) 54 min(s)

Juniper

For both ScreenOS and Junos, to obtain the configuration, in the web UI, go to **Configuration > Update > ConfigFile**.

Alternatively, for ScreenOS only, you can use the `get conf` CLI command and paste the output into a plain text file.

For Junos, FortiConverter requires the structural configuration file as a valid input. For example:

```
show configuration
## Last commit: 2013-06-05 11:28:53 CST by master
version 10.2S7;
groups {
  node0 {
    system {
      host-name SRX3400-Active;
      backup-router 172.16.1.254 destination 0.0.0.0/0;
    }
    interfaces {
      fxp0 {
        unit 0 {
          family inet {
            address 172.16.1.1/24;
          }
        }
      }
    }
  }
}
.....
.....
```

McAfee

The following is for McAfee Firewall Enterprise 7.0.1. The config is binary therefore the output of the following commands must be saved to a text file for FortiConverter.

- Interface and Zone (`cf interface|zone|zonegroup query`)
- Address object and address group object (`cf domain|ipaddr|iprange|subnet|netgroup query`)
- Service object and service group object (`cf service|servicegroup query`)
- Admin users and firewall users & user groups (`cf adminuser query, cf udb query, cf usergroup query`)
- Static routes (`cf static query`)
- Firewall Policy (`cf policy query`)

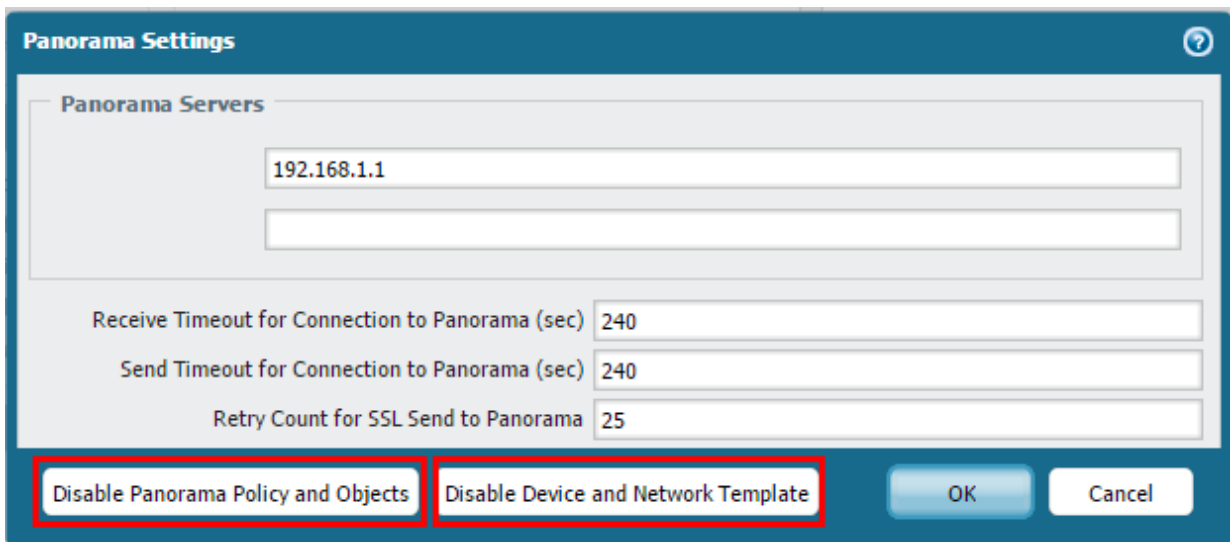
Palo Alto Networks

In the web UI, go to **Device > Setup > Operations**, and then click **Export named configuration snapshot**.

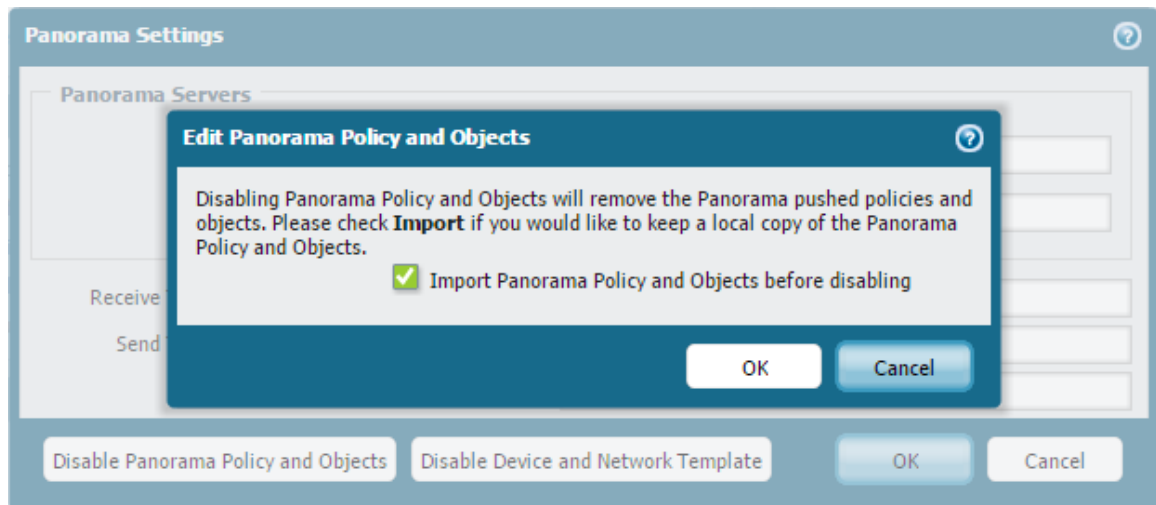
If the configuration is managed using Panorama shared policy configuration, you disable shared configuration before you export.

To disable Panorama shared configuration

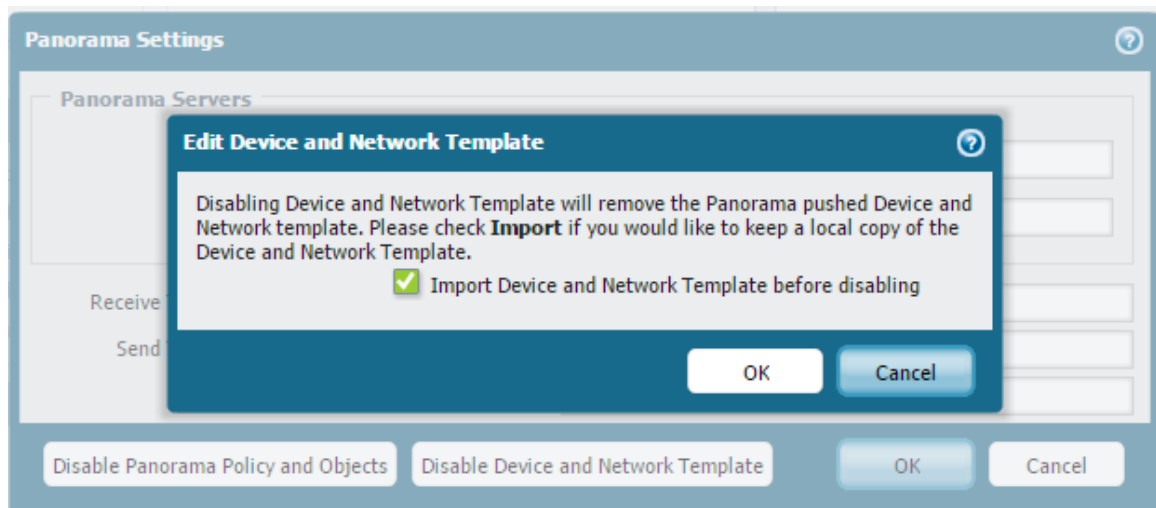
1. Log in to the device you want to remove from Panorama.
2. Go to **Device > Setup > Management > Panorama Settings** and click **Disable Panorama Policy and Object** or **Disable Device and Network Template**.



3. Do one of the following to import the configuration from Panorama into the firewall's local configuration:
 - If you clicked **Disable Panorama Policy and Object**, in the edit dialog box, select **Import Panorama Policy and Objects before disabling** and then click **OK**.

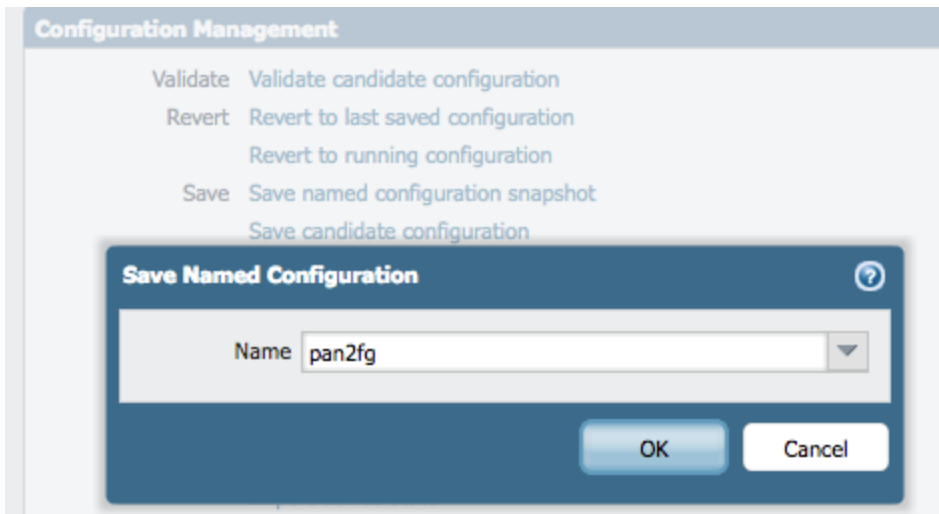


- If you clicked **Disable Device and Network Template**, select **Import Device and Network Template before disabling** and then click **OK**.

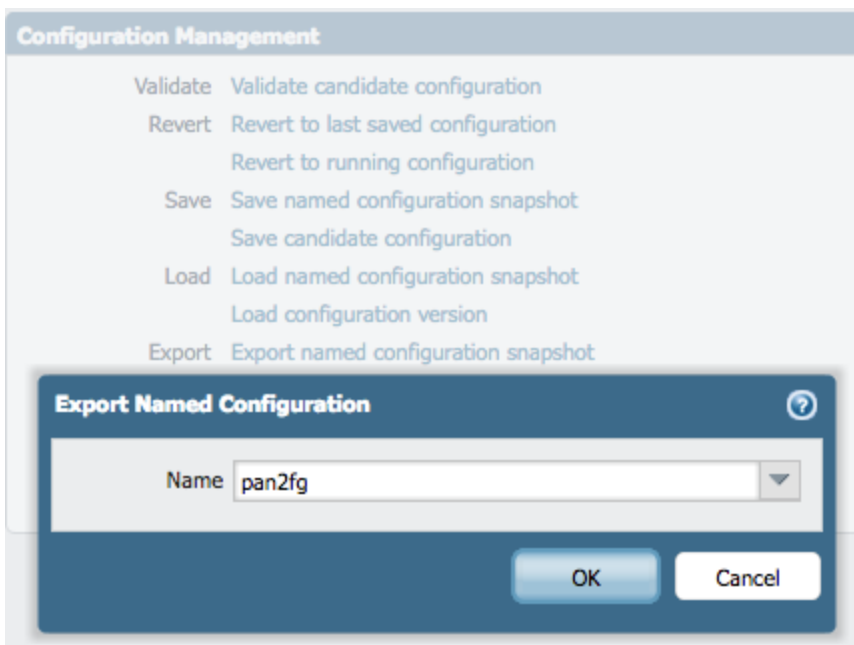


4. Log in to the device that was removed from Panorama and go to **Device > Setup > Operations > Save > Save named configuration snapshot**.

5. Enter a name that helps to identify the configuration. In this example, it is **pan2fg**.



6. Go to **Device > Setup > Operations > Export > Export the named configuration snapshot**.



7. Click **OK**.

You select the exported file on the Source Configuration page of the Palo Alto conversion wizard. For more information, see [Palo Alto conversion wizard on page 91](#).

SonicWall

To download the configuration (*.exp file), in the web UI, go to **System > Settings > Export Settings**.

Using the conversion wizards

To access the conversion wizards, from the main FortiConverter window, click the appropriate icon.

FortiConverter has a separate wizard for each supported vendor. The settings for each wizard type are described in the sections that follow this introduction.

Each wizard has a demo configuration file that can be selected using the Demo check box in the upper right corner.

The settings that are displayed depend on the input configuration. For some conversions, not every page in the wizard is displayed.

FortiConverter displays some of the conversion options you specified at the start of the text file `config-all`, which it adds to the output folder. This information is useful if you want to run the conversion again with the same settings.

Adjusting table sizes

The conversion wizard Start Options page allows you to specify whether FortiConverter allows larger table sizes and group membership than default in the output configuration.

This is useful when, for example, the source configuration has a large address group and the target configuration can accommodate the larger group. Otherwise, FortiConverter converts the large address group into two or more smaller address groups for a single policy.

For example, FortiConverter uses the following default maximum table sizes by default:

- **Address groups** – 2500
- **Addresses per group** – 300
- **Custom service objects** – 1024

When this option is selected, FortiConverter uses the following maximum table sizes:

- **Address groups** – 20000
- **Addresses per group** – 1500
- **Custom service objects** – 4096

In the following graphic you can see the output has created address groups with a limit of 300 members, but the source config has instances with over 500 members. In this case you can increase the address group membership limit if the target device supports the higher value.

Conversion Summary Policies Detected & Policies Created Messages & Warnings		
Item	Detected	Created
Interface	435	47
Zone	0	0
Address	7733	7810
Address Group	771	785
Maximum Address Group ...	540	300
VIP	0	225
IP Pool	0	68
Service	782	761
Service Group	57	57
Maximum Service Group ...	40	40
Schedule	10	11
Schedule Group	0	3
Static Route	379	379
Unicast Policy	264	557

Table size settings file

When you select **Adjust table sizes**, FortiConverter uses the maximum table sizes in the file **TargetPlatformTablesizeSetting.txt**, which is stored in the same folder as the FortiConverter executable file (for example, using the default installation path, **C:\Program Files (x86)\Fortinet\FortiConverter\TargetPlatformTablesizeSetting.txt**).

By default, the file contains the following values, which are suitable for high-end devices (for example, FortiGate 1200D or higher):

```
Address groups:20000
Addresses per group:1500
Custom service objects:4096
```

You can manually adjust these values by editing the file.

Viewing maximum table sizes for your target device

On your target system, enter the following command:

```
print tablesize
```

The maximum table sizes are displayed in a response similar to the following output:

```
firewall addrgrp: 0 20000 20000
firewall addrgrp:member: 1500 0 0
firewall service custom: 0 4096 0
```

NAT merge options

For Check Point and Cisco PIX conversions, you can select which types of NAT configuration FortiConverter uses to generate output firewall policies, or whether FortiConverter derives its NAT-based policies based on object names or object values.

Because it can take FortiConverter several hours to complete a conversion that includes a large number of NAT rules, Fortinet recommends that you turn off NAT merge for **all** types of NAT for your initial conversion. Then, after you resolve any issues with the conversion, run it again at a convenient time with NAT merge enabled.

NAT merge depth

The FortiConverter NAT merge feature compares a firewall policy's source and destination address with addresses in NAT rules. When these addresses overlap, FortiConverter uses the NAT rules to generate additional policies in the output configuration.

If a policy has an address with a large range, it can overlap with many NAT rules, which generates many NAT policies. Because output that includes a large number of NAT policies can be hard to review, FortiConverter provides NAT merge depth options that can reduce the number of NAT policies.

The merge depth policies control both the type of NAT to merge and the scope of the merge:

- When you select **Off** for a type of NAT, FortiConverter does not perform NAT merge using NAT rules of that type. If it is turned off for all types, the output conversion contains the converted source configuration policies only.
- When you select **Object Names**, FortiConverter generates policies based on NAT rules only where the address name the rules use is found in a policy. For Cisco PIX, this option can also match NAT rules and policies if they contain addresses that match exactly.

For example, a source configuration NAT rule dynamically translates the object "address1"(IP 10.10.10.10) to "200.200.200.200".

The source configuration also has three policies:

- policy1: source address is "address1"
- policy2: source address is "10.10.10.0-10.10.10.255"
- policy3: source address is "all"

Only policy1 matches the NAT rule, because it shares the address object name, and policy2 and policy3 do not match because they do not reference the name "address1".

Cisco PIX allows you to use an IP address to configure a NAT rule instead of a name. For example, the NAT rule 10.10.10.10 to 200.200.200.200. When **Object Names** is selected, this NAT rule matches a policy with source address 10.10.10.10, even though it does not refer to a object name because they have the exactly the same IP range. This is a useful option if you make use of supernet addresses that would match many address objects.

- When you select **Object Values**, FortiConverter generates policies based on NAT rules that have address values that fall anywhere in the range specified by a policy (overlap).

For the example above, when **Object Values** is selected, the NAT rule that translates the object "address1"(IP 10.10.10.10) to "200.200.200.200" matches both policy2 and policy3.

Object Values generates the most accurate matching of NAT rules and policies, but in most cases, it also generates more NAT policies.

Alcatel-Lucent conversion

Alcatel-Lucent differences

Conversion support

FortiConverter supports the conversion of the following Alcatel-Lucent Brick features:

- Interfaces
- Host Groups
- Service Groups
- Zone Brick Rulesets

Fortinet plans to support for the following Lucent features in a future FortiConverter release:

- NAT
- Schedule
- VPN
- Hosts Behind Zone

Address and address group configuration

- Lucent host addresses are mapped to FortiGate addresses.
- Lucent host groups are mapped to FortiGate address groups.
- Virtual Brick Addresses (VBA) are not supported.

Interface configuration

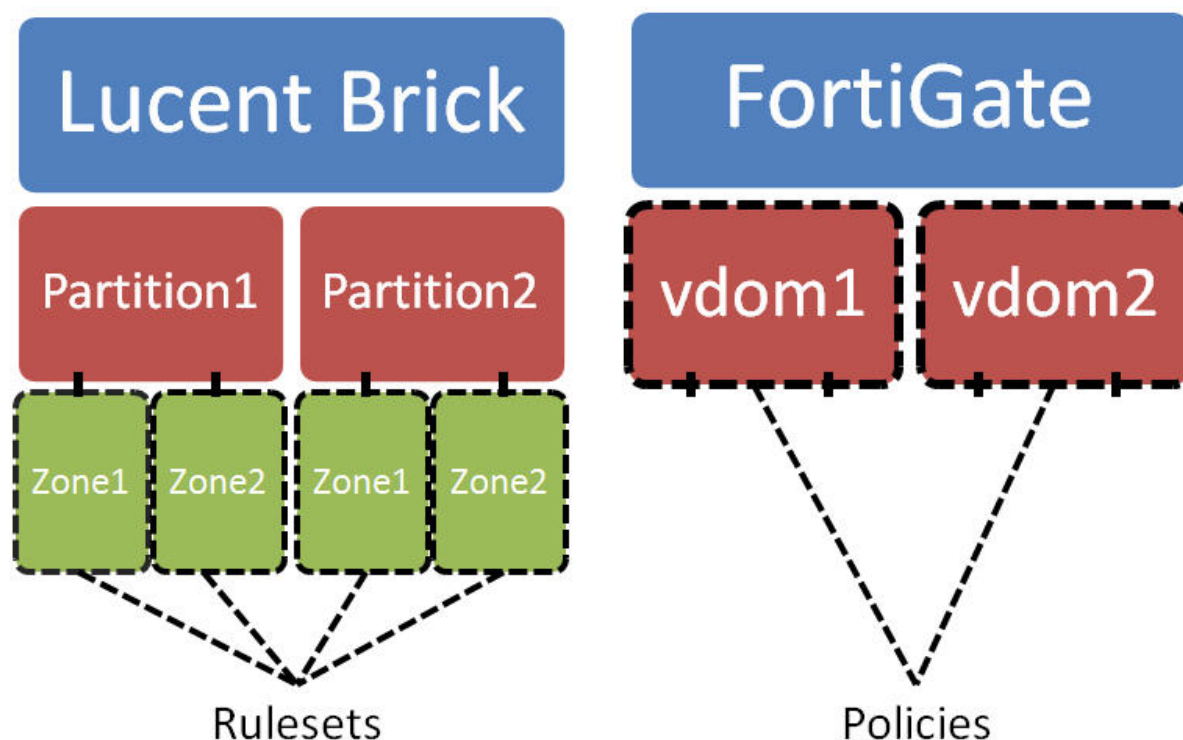
- FortiConverter assigns default VLAN configuration directly to physical interfaces.
- FortiConverter considers all VLANs named "*" or "Port Default" to be the default VLAN configuration.
- Domain Addresses are not supported.

Service and Service Group configuration

- Lucent Service Groups are mapped to FortiGate Service Groups.
- Lucent service "*" maps to FortiGate service "any".

Policy configuration

Lucent Brick Zone Rulesets operate at the zone level, which has no direct equivalent in FortiGate. Zone rulesets need to be translated into equivalent FortiGate policies.



FortiConverter translates Lucent Brick rules by separating traffic into two categories: inter-partition and intra-partition.

- **Inter-partition traffic** behaves like inter-VDOM traffic, and is simple to convert to FortiGate policies.
- **Intra-partition traffic** is more complicated to convert because multiple zone rules can be applied.

FortiConverter handles the inter-partition traffic by creating a general policy for each rule.

FortiConverter handles the intra-partition traffic by looking for all matches between two zone rulesets. FortiConverter looks at 3 fields: source, destination, and service. All 3 fields must overlap for the rules to match. FortiConverter creates a policy for each match using the intersection of each field.

The action of the rules determines the action of the converted policy, as shown in the following table:

Rule 1	Rule 2	Policy
Pass	Pass	Accept
Pass	Drop	Deny
Drop	Pass	Deny
Drop	Drop	Deny

Inter-partition Deny policies have higher priority than intra-partition policies, while inter-partition Accept policies have lower priority than intra-partition policies.

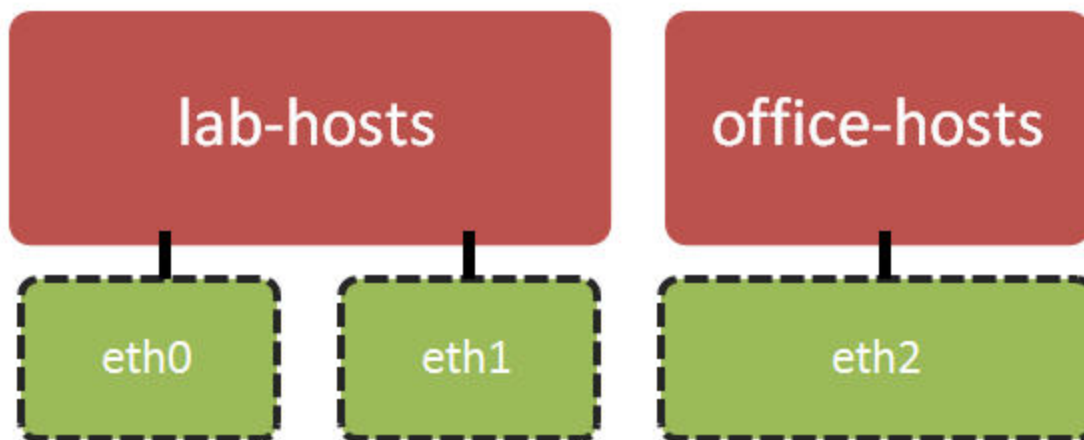
Lucent default ruleset "firewall" is currently unsupported.

VDOM configuration

- Lucent partitions map to FortiGate VDOMs.
- VDOM names are limited to 11 characters. FortiConverter truncates longer names to 11 characters.
- Lucent partition “*Default” maps to the FortiGate root VDOM.

Example conversion

The following block diagram and tables illustrates a Lucent configuration with 2 partitions and 3 zones.



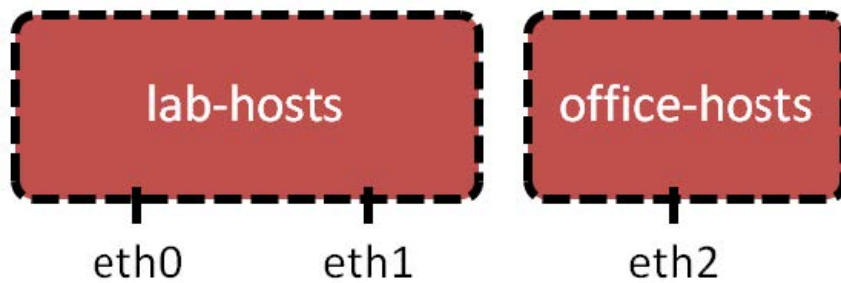
Zone eth0 Ruleset					
Rule Num	Direction	Source	Destination	Service	Action
1000	Out	192.168.1.15	172.30.10.1/24	*	Drop
1001	Both	192.168.1.0/24	172.30.10.1/24	*	Pass

Zone eth1 Ruleset					
Rule Num	Direction	Source	Destination	Service	Action
1000	In	*	172.30.10.5 - 172.30.10.20	TCP	Pass
1001	Both	192.168.1.132	172.30.10.9	*	Pass

Zone eth2 Ruleset

Rule Num	Direction	Source	Destination	Service	Action
1000	Both	*	10.10.15.0/24	HTTP	Pass

This Lucent configuration creates the following FortiGate configuration. Inter-partition rules are in **bold**.

**VDOM lab-hosts Policies**

Policy Num	Src Interface	Dst Interface	Source	Destination	Service	Action
10000	eth0	any	192.168.1.15	172.30.10.1/24	*	Deny
10001	eth0	eth1	192.168.1.0/24	172.30.10.5 - 172.30.10.20	TCP	Accept
10002	eth0	eth1	192.168.1.132	172.30.10.9	*	Accept
10003	eth0	any	192.168.1.0/24	172.30.10.1/24	*	Accept
10004	any	eth0	192.168.1.0/24	172.30.10.1/24	*	Accept
10005	eth1	eth0	192.168.1.132	172.30.10.9	*	Accept
10006	eth1	any	192.168.1.132	172.30.10.9	*	Accept
10007	any	eth1	192.168.1.132	172.30.10.9	*	Accept

VDOM office-hosts Policies

Policy Num	Src Interface	Dst Interface	Source	Destination	Service	Action
10000	any	eth2	any	10.10.15.0/24	HTTP	Accept
10001	eth2	any	10.10.15.0/24	any	TCP	Accept

Alcatel-Lucent conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

Start Options

Setting	Description
Model	LucentBrick is the only supported model.
Output Format	FortiGate is the only supported output format.
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Enable <i>host behind zone</i> attribute	<p>Specifies whether FortiConverter restricts the destination or source IP addresses in the firewall policy it generates to ones specified by the "host behind zone" settings in the source configuration.</p> <p>When this option is disabled, FortiConverter ignores the "host behind zone" settings and it uses the destination or source IP address specified by the source rule in the output policy.</p>
Convert <i>Administrative Zone</i> zone ruleset	<p>Specifies whether FortiConverter includes the default "administrativezone" ruleset in the output configuration.</p> <p>Because the "administrativezone" ruleset is designed for device management, in most cases, it is not required in the output configuration.</p>
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.

Setting	Description
Enable <i>intra-partition</i> zone rule set merge	Specifies whether FortiConverter creates FortiGate policies for traffic within a partition that the source configuration applies multiple zone rulesets to. For more information on how FortiConverter converts intra-partition zone rulesets to a FortiGate policy, see Alcatel-Lucent conversion on page 31 .
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Output Directory	Select the folder where the output configuration is saved.

Source Configuration

Setting	Description
Source Configuration Folder	Select the input folder.

Device Selection

Setting	Description
(firewall name)	Select the firewalls to convert.

Partition & Zone Rule Selection

Setting	Description
Select all partitions	Select to select all partitions and clear it to de-select all partitions.
Partition selection	Use the check box to select a partition to include in the conversion. Click the pair of arrows on the right to open or close the detailed partition view, which shows the individual zone rules within a partition.
Zone rule selection	Use the check box to select a zone rule to include in the conversion.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, either double-click a column other than FortiGate Interface, or select the entry and click **Edit**.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

This page displays the logical interfaces that FortiConverter detects in the source configuration and the changes it makes to the associated physical interface and its naming.

You cannot use this page to modify the logical interface settings.

If required, you can use the Tuning page to modify logical interfaces and zones. See ["Tuning the FortiConverter output" on page 105](#).

Route Information

Setting	Description
Add	Click to add a route.

Setting	Description
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
Export	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Check Point conversion

Check Point differences

General

- FortiGate's `set allowaccess` command for interfaces does not exist on Check Point. Because FortiGate requires this setting, FortiConverter by default enables all services for interfaces.
- The interface "Lead to Internet" is a default static route on FortiGate.
- FortiConverter supports Traditional Mode and Simplified Mode IPSec.

Schedule configuration

FortiConverter converts "Day in month" time schedules to FortiGate one-time schedules. It converts "Day in week" and "None" schedules to recurring schedules.

You assign a year range for the "Day in month" schedule. If the specified day does not exist for a certain month, FortiConverter does not generate the one-time schedule for that month.

For example, the Check Point firewall's "Day in month" time schedule has the following parameters for each year:

```
Month: Jan/March/Sept.  
Day: 1, 5, 31  
Start and end time: 0:00 to 10:00
```

If you select `1` for **Convert 'Day in Month' to 'One Time Schedule' for next x years** in the FortiConverter conversion wizard and the current year value for the PC running FortiConverter is 2013, the wizard generates the following output for FortiGate one-time schedules:

```
From 0:00 Jan/1/2013 To 10:00 Jan/1/2013  
From 0:00 Jan/5/2013 To 10:00 Jan/5/2013  
From 0:00 Jan/31/2013 To 10:00 Jan/31/2013  
From 0:00 Match/1/2013 To 10:00 Match/1/2013  
From 0:00 Match/5/2013 To 10:00 Match/5/2013  
From 0:00 Match/31/2013 To 10:00 Match/31/2013  
From 0:00 Sept./1/2013 To 10:00 Sept./1/2013  
From 0:00 Sept./5/2013 To 10:00 Sept./5/2013
```

Notice that FortiConverter does not generate a Sept. 31 schedule.

NAT and policy configuration

FortiConverter supports the conversion of the following NAT types:

- Hide NAT
- Static NAT
- Manual NAT

FortiConverter does not convert NAT global properties.

VPN configuration

- Check Point does not configure VPN within a firewall rule. When FortiConverter converts the configuration to FortiGate, it generates several VPN policies from non-"Lead to Internet" interfaces to the "Lead to Internet" (default route) interface.
- After FortiConverter converts the VPN configuration, the VPN policy's destination interface refers to the "Lead to Internet" interface.

If you changed the default route's egress interface, you may need to update the VPN/Policy configuration manually.

Service objects

Unlike FortiGate service objects, Check Point service objects have a protocol type attribute. FortiGate uses a session helper object to provide the same functionality as the service objects with a protocol type attribute.

IPSec VPN support

FortiConverter can support VPN IPSec policies configured in both Traditional Mode and Simplified Mode. However, FortiConverter can only convert one mode at a time. If encrypted rules are detected, FortiConverter will default to Traditional Mode conversion.

To convert Traditional Mode policies to Simplified Mode policies, use the Check Point Security Policy Converter Wizard. This can be found by clicking **Policy > Convert to > Simplified VPN** from the Check Point SmartDashboard.







FortiConverter can detect and convert the following VPN topologies in Simplified form:

- Meshed
- Star

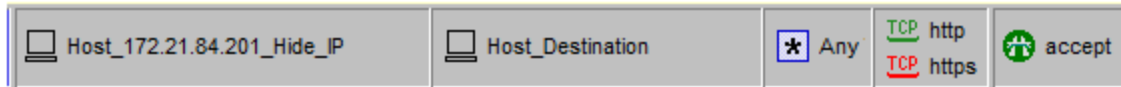
Check Point NAT merge examples

Host address hides behind IP

The source configuration hides the host address object `Host_172.21.84.201_Hide_IP` behind the IP address `210.61.82.139`.

 Host_172.21.84.201_Hide_IP	 Any	 Any	 Host_172.21.84.201_Hide_IP (Hiding Address)	 Original	 Original
----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------

It also has a firewall rule that matches the object to source addresses.



FortiConverter captures the hide NAT IP address 210.61.82.139 in an IP pool:

```
edit "ippool-210.61.82.139"
  set endip 210.61.82.139
  set startip 210.61.82.139
  set type overload
next
```

FortiConverter also creates a central NAT object that uses the IP pool:

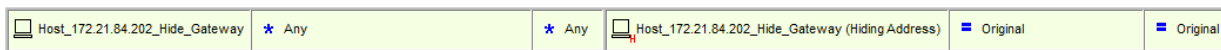
```
edit 3
  set orig-addr "Host_172.21.84.201_Hide_IP"
  set dst-addr "all"
  set nat-ippool "ippool-210.61.82.139"
next
```

FortiConverter converts the firewall policy to the following policy, for which central NAT is enabled (`set nat enable`):

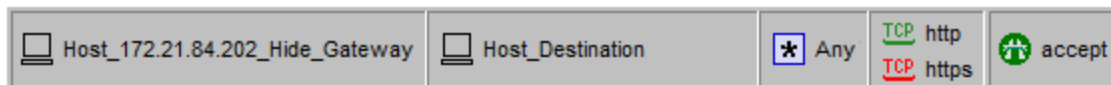
```
edit 10001
  set srcintf "port2" (generated from route information)
  set dstintf "port1" (generated from route information)
  set srcaddr "Host_172.21.84.201_Hide_IP"
  set dstaddr "Host_Destination"
  set service "http" "https"
  set schedule "always"
  set logtraffic all
  set status enable
  set action accept
  set comments "Example of address hides behind IP."
  set global-label "FW1"
  set nat enable
next
```

Host address hides behind gateway

The source configuration hides the host address object Host_172.21.84.202_Hide_Gateway behind the gateway.



It also has a firewall rule that matches the object to source addresses.



FortiConverter generates the following policy, for which NAT is enabled (`set nat enable`). However, because it does not specify an IP pool, the source address uses the interface IP address to perform NAT:

```
edit 10002
  set srcintf "port2"
  set dstintf "port1"
```

```













set srcaddr "Host_172.21.84.202_Hide_Gateway"
set dstaddr "Host_Destination"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of address hides behind gateway."
set global-label "FW1"
set nat enable
next

```







When a policy has NAT enabled, it attempts to match a source address to a VIP object. If it finds a match, it performs static NAT using the VIP object. If it does not find a match, it uses the interface IP address. (See [Address with static NAT matches policy source address](#) for an example with a VIP object.)

Address with static NAT matches policy source address

The source configuration static NAT settings translate the IP address of the host address object `Host_172.21.84.203_Static` to 210.61.82.160.

 Host_172.21.84.203_Static	 Any	 Any	 Host_172.21.84.203_Static (Valid Address)	 Original	 Original
 Any	 Host_172.21.84.203_Static (Valid Address)	 Any	 Original	 Host_172.21.84.203_Static	 Original

It also has a firewall rule that matches the object to source addresses.

 Host_172.21.84.203_Static	 Host_Destination	 Any	 http  https	 accept
---------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------

FortiConverter generates the following VIP object and policy:

```

edit "vip-Host_172.21.84.203_Static"
set extip 210.61.82.160
set mappedip 172.21.84.203
set extintf port1
set nat-source-vip enable
next













edit 10003
set srcintf "port2"
set dstintf "port1"
set srcaddr "Host_172.21.84.203_Static"
set dstaddr "Host_Destination"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of address with static NAT in source address."
set global-label "FW1"
set nat enable
next

```





When a policy has NAT enabled, it attempts to match a source address to a VIP object. If it finds a match, it performs static NAT using the VIP object. If it does not find a match, it uses the interface IP address. (See [Host address hides behind gateway](#) for an example without a VIP object.)

Address with static NAT matches policy destination address

Like the example where static NAT matches the policy destination address, the source configuration static NAT settings translate the IP address of the host address object `Host_172.21.84.203_Static` to `210.61.82.160`.

 Host_172.21.84.203_Static	 Any	 Any	 Host_172.21.84.203_Static (Valid Address)	 Original	 Original
 Any	 Host_172.21.84.203_Static (Valid Address)	 Any	 Original	 Host_172.21.84.203_Static	 Original

It also has a firewall rule that matches the object to destinations.

 Host_Source	 Host_172.21.84.203_Static	 Any	TCP http TCP https	 accept
-----------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------	-----------------------	--------------------------------------------------------------------------------------------

FortiConverter generates the following VIP object and policy. The policy replaces the destination address with the VIP object:

```
edit "vip-Host_172.21.84.203_Static"
  set extip 210.61.82.160
  set mappedip 172.21.84.203
  set extintf port1
  set nat-source-vip enable
next

edit 10004
  set srcintf "port1"
  set dstintf "port2"
  set srcaddr "Host_Source"
  set dstaddr "vip-Host_172.21.84.203_Static"
  set service "http" "https"
  set schedule "always"
  set logtraffic all
  set status enable
  set action accept
  set comments "Example of address with static NAT in destination address."
  set global-label "FW1"
next
```

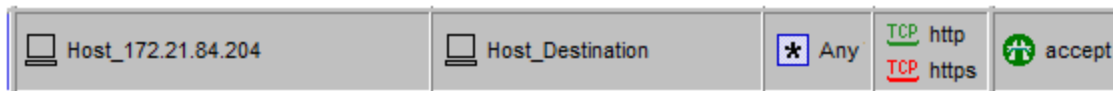
In this case, the destination address is used directly.

Manual NAT rule matches policy source address with one-to-one mapping

A source configuration has a manual NAT rule that translates a source address:

 Host_172.21.84.204	 Host_Destination	 Any	 Host_210.61.82.160	 Original	 Original
--------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------

It also has the following firewall rule:



This configuration is a one-to-one mapping because both the original address and translated address are host addresses.

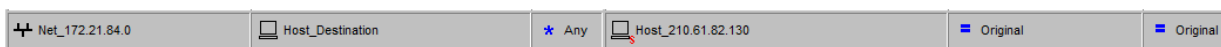
FortiConverter generates the following IP address pool and policy. NAT is enabled for the policy and it uses the pool to perform NAT:

```
edit "ippool-210.61.82.160"
  set endip 210.61.82.160
  set startip 210.61.82.160
  set type overload
next

edit 10005
  set srcintf "port2"
  set dstintf "port1"
  set srcaddr "Host_172.21.84.204"
  set dstaddr "Host_Destination"
  set service "http" "https"
  set schedule "always"
  set logtraffic all
  set status enable
  set action accept
  set comments "Example of one to one source NAT rule ."
  set global-label "FW1"
  set nat enable
  set poolname "ippool-210.61.82.160"
next
```

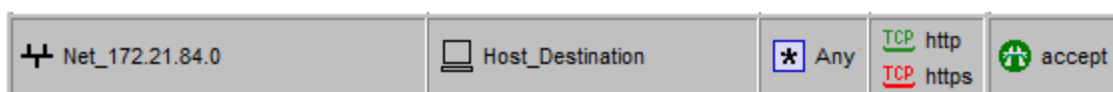
Manual NAT rule matches policy source address with many-to-one mapping

A source configuration has a manual NAT rule that translates a source address:



Net_172.21.84.0 is a network object with the IP address 172.21.84.0/24.

The configuration also has the following firewall rule, which matches the object to source addresses:



FortiConverter converts many-to-one rules to an IP pool.

For this configuration, FortiConverter generates the following IP pool, central NAT object, and policy:

```
edit "ippool-210.61.82.130"
  set endip 210.61.82.130
  set startip 210.61.82.130
  set type overload
next

edit 2
```

```

set orig-addr "Net_172.21.84.0"
set dst-addr "Host_Destination"
set nat-ippool "ippool-210.61.82.130"
next

edit 10006
set srcintf "port2"
set dstintf "port1"
set srcaddr "Net_172.21.84.0"
set dstaddr "Host_Destination"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of one to many source NAT."
set global-label "FW1"
set nat enable
next

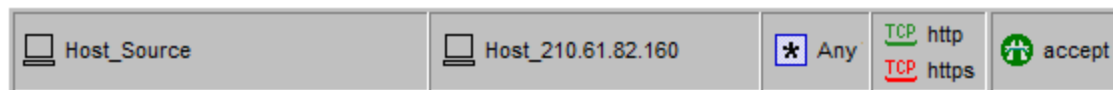
```

Manual NAT rule matches policy destination address

A source configuration has a manual NAT rule that translates a destination address:



It also has the following firewall rule:



FortiConverter generates the following VIP object and policy:

```

edit "vip-Host_210.61.82.160"
set extip 210.61.82.160
set mappedip 172.21.84.204
set extintf any
set nat-source-vip enable
next

edit 10007
set srcintf "port1"
set dstintf "port2"
set srcaddr "Host_Source"
set dstaddr "Host_172.21.84.204"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of one to one destination NAT rule ."
set global-label "FW1"
next

```

The translated address is used as the destination address because it is in internal network.

NAT rule and policy addresses do not match: Source address of the policy contains the NAT object




In some cases, the address field of a policy contains more than one address object. If NAT is enabled for an address object, FortiConverter calculates the overlap of the address object and the policy address. It then generates an independent policy ahead of the original policy.

FortiConverter uses this mechanism for all NAT types, including Hide NAT and Static NAT.

A source configuration has a host address object `Host_172.21.84.201_Hide_IP` that hides behind the address `210.61.82.139`.

 Host_172.21.84.201_Hide_IP	★ Any	★ Any	 Host_172.21.84.201_Hide_IP (Hiding Address)	■ Original	■ Original
--------------------------------------------------------------------------------------------------------------	-------	-------	-------------------------------------------------------------------------------------------------------------------------------	------------	------------

It also has the following firewall rule:

 AddressGroup_Source	 Host_Destination	★ Any	TCP http TCP https	 accept
-------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------	-------	-----------------------	--------------------------------------------------------------------------------------------

`AddressGroup_Source` is a group that contains the members `Host_172.21.84.201_Hide_IP`, `Host_Member1`, and `Host_Member2`.

FortiConverter generates the following configuration, which converts the address `210.61.82.139` to an IP pool, and includes a central NAT object that uses the IP pool and a NAT-enabled policy:

```
edit "ippool-210.61.82.139"
    set endip 210.61.82.139
    set startip 210.61.82.139
    set type overload
next

edit 3
    set orig-addr "Host_172.21.84.201_Hide_IP"
    set dst-addr "all"
    set nat-ippool "ippool-210.61.82.139"
next

edit 00110008
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "Host_172.21.84.201_Hide_IP"
    set dstaddr "Host_Destination"
    set service "http" "https"
    set schedule "always"
    set logtraffic all
    set status enable
    set action accept
    set global-label "MTKFW1"
    set nat enable
next

edit 10008
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "AddressGroup_Source"
```

```





set dstaddr "Host_Destination"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of name overlap in source address."
set global-label "FW1"
next

```

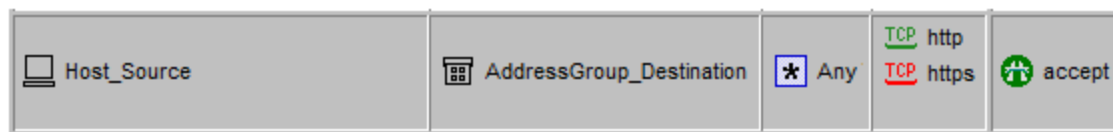
Policy 10008 is converted directly from the original firewall rule. Policy 0011008 is a copy of policy 10008 that specifies `Host_172.21.84.201_Hide_IP` as the source address and performs the hide NAT.

NAT rule and policy addresses do not match: Destination address of the policy contains the NAT object

A source configuration has a host address object `Host_172.21.84.203_Static` that Static NAT translates to `210.61.82.160`.

 Host_172.21.84.203_Static	★ Any	★ Any	 Host_172.21.84.203_Static (Valid Address)	■ Original	■ Original
★ Any	 Host_172.21.84.203_Static (Valid Address)	★ Any	■ Original	 Host_172.21.84.203_Static	■ Original

It also has the following firewall rule:



`AddressGroup_Destination` is a group that contains the members `Host_172.21.84.203_Static`, `Host_Member3`, and `Host_Member4`.

FortiConverter generates the following VIP object and NAT policy:

```

edit "vip-Host_172.21.84.203_Static"
set extip 210.61.82.160
set mappedip 172.21.84.203
set extintf port1
set nat-source-vip enable
next

edit 00110009
set srcintf "port1"
set dstintf "port2"
set srcaddr "Host_Source"
set dstaddr "Host_172.21.84.203_Static"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set global-label "FW1"
next

edit 10009

```

```

set srcintf "port1"
set dstintf "port2"
set srcaddr "Host_Source"
set dstaddr "AddressGroup_Destination"
set service "http" "https"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "Example of name overlap in destination address."
set global-label "FW1"
next

```

FortiConverter converts policy 10009 directly from the original firewall rule. Policy 0011009 is a copy of policy 10009 that has the destination address `Host_172.21.84.203_Static` and performs the static NAT.

Unused VIP objects generate policy

In some cases, the final policy in an output configuration is one that FortiConverter generates from VIP objects that are not used as a destination address in at least one policy. For example:

```

edit 001
set srcintf "port1"
set dstintf "any"
set srcaddr "all"
set dstaddr "vip-Host_172.21.84.24" " vip-Host_172.21.84.25" " vip-Host_172.21.84.26"
set service "ALL"
set schedule "always"
set logtraffic all
set status enable
set action deny
set comments "This policy is auto-generated by FortiConverter to activate static-NAT
VIPs that are not referenced in other policies."
next

```

This type of policy enables the source static NAT mapping by capturing all the VIP objects that other policies do not reference.

In some conversions, FortiConverter generates more than one of this kind of policy – one for each external interface that is referenced by an unreferenced VIP object.

Check Point conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

The pages that the Check Point conversion wizard displays depend on whether your source configuration is SmartCenter or Provider-1.

Because Provider-1 uses global and device-level virtual domains that are similar to FortiManager ADOMs, you typically convert Provider-1 configurations to policy packages and objects for your source firewalls in the FortiManager Policy & Objects database. You can select FortiManager as the output format on the Start Options page.

Including object comments in the output configuration

By default, output configurations from Check Point, Juniper, and SonicWall do not include all object comments. Depending on the source configuration, the default output can exclude the following information:

- comments for interface, address, service, or rule objects
- review memo information for policy objects

To configure FortiConverter to include object comments

1. Before you start the conversion wizard, in a plain-text editor, open the appropriate option file in the FortiConverter installation directory. (The default folder for the files is C:\Program Files (x86)\Fortinet\FortiConverter\.)

For example, for a Check Point conversion, open the file `CheckpointOptions.txt`.

2. Remove the # (number sign) from one or more of the following entries to include the corresponding data in the output configuration:

```
#interface comment
#address comment
#service comment
#rule comment
#policy review memo
```

3. Save your changes, and then start the wizard to begin the conversion process.

Start Options

Setting	Description
Model	Select the source Check Point model.
Output Format	Select the appropriate output for your target Fortinet device. You can convert Provider-1 to FortiManager output only.
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output. This option can be useful if your target device has table size limitations. You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.

Setting	Description
Ignore firewall policies with <i>all</i> or <i>any</i> addresses when processing NAT rules	<p>Specifies whether FortiConverter ignores firewall policies with an "all" or "any" address when it merges a NAT rule and a firewall policy to create a FortiGate NAT policy.</p> <p>FortiConverter creates new policies in the output configuration based on where NAT rules to firewall policies intersect. Because firewall policies that use "all" or "any" as the address create many intersections, Fortinet recommends that you ignore them.</p>
Auto generate policy interfaces	<p>Specifies whether FortiConverter generates policy interfaces using a Check Point route file. (For example, a file you obtained using the <code>netstat -nr</code> command.)</p> <p>You select the route file on the Firewall page.</p> <p>Check Point policies define rules for network-to-network communication. When you migrate a Check Point configuration to FortiGate, which uses policies that define rules for interface-to-interface communication, you can use the Check Point router information to determine which interface a policy uses. If you disable this option, or no router information is not available, FortiConverter uses the "any" interface.</p>
More	Displays additional start options. See Start Options - More on page 50 .
Output Directory	Select the folder where the output configuration is saved.

Start Options - More

Setting	Description
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Auto generate policy interfaces	<p>Specifies whether FortiConverter generates policy interfaces using the Check Point route file.</p> <p>Check Point policies define rules for network-to-network communication. When you migrate a Check Point configuration to FortiGate, which uses policies that define rules for interface-to-interface communication, you can use the Check Point router information to determine which interface a policy uses. If you disable this option, or no router information is not available, FortiConverter uses the "any" interface.</p>

Setting	Description
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Number of year-long schedules from <i>day in month</i> schedules	Specifies how many years of one-time schedules to generate. The wizard converts Check Point “day in month” schedules into equivalent one-time FortiGate schedules.
Enable Route-based IPSec	Specifies whether Route-based IPSec is used for this conversion.
Comments	
Interface comment	Specifies whether FortiConverter copies the interface comment from the source configuration to the mapped FortiGate interface.
Address comment	Specifies whether FortiConverter copies the address comment from source configuration to the converted FortiGate address.
Service comment	Specifies whether FortiConverter copies the service comment from the source configuration to converted FortiGate service.
Policy package name, rule Number	
Original Check Point firewall rule comment	Specifies what information FortiConverter includes in the converted policy comment.
Policy package name, rule number, original Check Point firewall rule comment	
NAT Merge	
Ignore firewall policies with <i>all</i> or <i>any</i> addresses when processing NAT rules	Specifies whether FortiConverter ignores firewall policies with an “all” or “any” address when it merges a NAT rule and a firewall policy to create a FortiGate NAT policy. FortiConverter creates new policies in the output configuration based on where NAT rules to firewall policies intersect. Because firewall policies that use “all” or “any” as the address create many intersections, Fortinet recommends that you ignore them.
Enable Central NAT merge	Specifies whether FortiConverter converts Hide NATs to FortiGate central NATs instead of policy-based NATs.

Setting	Description
Copy NAT merge policies to a separate text file	<p>Specifies whether FortiConverter generates a separate text file that lists the NAT rule intersections and the firewall policies they generated.</p> <p>FortiConverter generates NAT merge policies by merging NAT and security rules in the source configuration.</p>
Enable <i>identity match</i> of NAT policy	<p>Specifies whether FortiConverter converts or ignores any identity NAT rules in the source configuration.</p> <p>The "range" and "network" address objects in a Check point configuration can include hide NAT and static NAT. Check Point performs NAT only when a host in the IP range of the address object communicates with a host outside that range. To disable NAT for traffic with both source and destination inside the address range, Check Point generates an automatic rule called an "identity NAT rule".</p> <p>By default, FortiConverter excludes this type of rule from the conversion because it performs no NAT after it is converted and generates redundant policies. You can enable this option to generate policies based on the identity NAT rules.</p>
Rule NAT merge depth	<p>Specifies which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values.</p> <ul style="list-style-type: none"> • Off – FortiConverter converts firewall policies only and does not perform NAT merge for this type of NAT. This is useful for performing a quick, initial conversion to discover any conversion issues.
Static NAT merge depth	<ul style="list-style-type: none"> • Object Names – FortiConverter performs NAT merge based on matching address names in firewall policies and NAT rules. • Object Values – FortiConverter performs NAT merge based on matching address values in firewall policies and NAT rules. It generates the most accurate matching of NAT rules and policies, but in most cases, it also generates more NAT policies. <p>Because it can take FortiConverter several hours to complete a conversion that include a large number of NAT rules, Fortinet recommends that you turn off or limit NAT merge for your initial conversion. Then, resolve any issues with the conversion before you run it again with NAT merge enabled.</p> <p>For more information, including example matches, see NAT merge options on page 29.</p>
Hide NAT merge depth	
Back	Displays the main Start Options page.

MDS Source Configuration (Provider-1 only)

Setting	Description
Browse	Select the Provider-1 configuration files.

MDS Selection (Provider-1 only)

Setting	Description
Please select the MDS which you want to convert	Select the domain to convert.

Global Policy Collection (Provider-1)

Setting	Description
Standard_Global_Policy	Specifies whether FortiConverter converts the Standard Global Policy. You can select both Standard Global Policy and Simple Global Policy .
Simple_Global_Policy	Specifies whether FortiConverter converts the Simple Global Policy.

Domain Source Configuration

A Check Point configuration is made up of management database files, which contain multiple object and policy definitions.

Ensure the configuration is in a text format (for example, in plain text or XML). FortiConverter cannot use binary files.

For more information, see [Downloading the source configuration files on page 20](#).

Setting	Description
Browse	Click to select domain source configuration files. For information on acquiring these files, see Downloading the source configuration files on page 20 .

Policy Collection

Setting	Description
(policy collection item)	Select the policy collections to convert.
Select/deselect all	Select or clear all policy collection items.

Firewall Selection (SmartCenter only)

Setting	Description
(firewall item)	Select one or more firewalls to convert from the domain source configuration. If HA is configured, an entry for the HA device is displayed, in addition to the member gateways.
Output to non-root VDOM	Select to structure the conversion output for a VDOM-enabled device, using a VDOM you define. By default, FortiConverter maps the firewall to a standalone FortiGate configuration that uses the FortiGate <i>root</i> VDOM.
(VDOM name field)	Enter the name of the VDOM to convert the firewall to.
(Route file name field)	If you selected Auto generate policy interfaces on the Start Options page, enter the path and file name of a file that contains route information, or click Browse to select it. For example, the file can contain routing tables you obtained using the <code>netstat -nr</code> command.

Physical Interface Mapping (SmartCenter only)

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information (SmartCenter only)

FortiConverter creates static routes in the output using the static routes it detects in the source configuration and any routing information you provide.

Double-click an item to edit it.

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.

Tab	Description
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Cisco conversion

Cisco differences

General

- FortiGate's `set allowaccess` command for interfaces does not exist on Cisco firewalls. Because FortiGate requires this setting, FortiConverter enables all services for interfaces by default.
- The postfix "_conflict" used for services prevents a service and a service group from having the same name. It is recommended you rename these objects.
- On Cisco IPsec VPNs, Phase 1 (ISAKMP) supports more than two types of authentication methods. FortiGate supports only two types: `pre-share` and `rsa-sig`. Therefore, you must assign methods for each VPN connection. The wizard converts Cisco EZVPN configuration to FortiGate VPN policies from the "Intranet" interface to the interface which was assigned by the `crypto map interface` command.
- FortiConverter does not support the following Cisco configuration elements:
 - Wild card netmasks for `access-list` and `object-group` objects
 - EZVPN conversion

For example, FortiConverter does not support `crypto ipsec profile <profile-name>` and `crypto isakmp profile <profile-name>` .

NAT support

Software	Supported NAT types
IOS	Dynamic NAT and Static NAT
PIX	Dynamic NAT(NAT exemption, policy dynamic NAT, regular) Static NAT(Static NAT, Static PAT, Identity Static NAT)
FWSM	
ASA (8.2 and earlier)	
ASA (8.3 and later)	Object NAT(Dynamic, Static) Twice NAT

FortiConverter does not support the following NAT features:

- ASA objects for NAT and double NAT
- Identity NAT and NAT Exemption

To reduce the number of NAT polices a conversion generates, FortiConverter does not convert Static NAT rules in which the source and mapped IPs are the same.

PIX and ASA NAT merge examples



For ASA, these examples are valid only for source configurations created using software versions 8.2.x and earlier.

Identity NAT

Dynamic NAT with ID 0 is the identity NAT and specifies that the address does not need to be translated. For example:

```
nat (inside) 0 172.17.3.68 255.255.255.255
```

Currently, because FortiConverter does not merge this kind of NAT, it ignores the settings when it converts the configuration.

Static identity NAT

In the following settings, in the two static NAT settings, the real address and the mapped address are the same.

```
static (inside,outside) 200.251.129.33 200.251.129.33 netmask 255.255.255.255
```

```
static (inside,outside) 172.17.3.69 access-list inside_nat0_static
```

```
access-list inside_nat0_static extended permit ip host 172.17.3.69 object-group Group0
```

FortiConverter does not support this kind of static NAT and it ignores the settings when it converts the configuration.

Dynamic NAT with NAT IP

A source configuration has the following dynamic NAT settings:

```
global (outside) 1 172.31.242.69 netmask 255.255.255.255
```

```
nat (inside) 1 172.17.3.120 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_inside extended permit tcp host 172.17.3.120 object-group Group_Destination eq http
```

```
access-group acl_inside in interface inside
```

FortiConverter generates the following IP pool and NAT policy from the source configuration:

```
edit "ippool-172.31.242.69"  
  set endip 172.31.242.69  
  set startip 172.31.242.69  
  set type one-to-one  
next
```

```

edit 10001
    set srcintf "port1" (corresponds to the interface "inside")
    set dstintf "port2" (corresponds to the interface "outside")
    set srcaddr "h_172.17.3.120"
    set dstaddr "Group_Destination"
    set service "HTTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
    set ippool enable
    set poolname "ippool-172.31.242.69"
next

```

The interface and address of the dynamic NAT matches the firewall rule, so FortiConverter inserts the IP pool into policy 10001.

Dynamic NAT with mapped IP is “interface”

A source configuration has the following dynamic NAT settings:

```

global (outside) 2 interface
nat (inside) 2 172.17.40.73 255.255.255.255

```

It also has the following firewall rule:

```

access-list acl_inside extended permit tcp host 172.17.40.73 object-group
Group_Destination eq http
access-group acl_inside in interface inside

```

FortiConverter generates the following NAT policy from the source configuration:

```

edit 10002
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.17.40.73"
    set dstaddr "Group_Destination"
    set service "HTTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
next

```

The interface and address of the dynamic NAT matches the firewall rule. NAT is enabled for policy 10002, but because there is no IP pool specified, the source address uses the interface IP address to perform NAT.

Dynamic policy NAT

A source configuration has the following dynamic NAT settings, which define NAT using an access list:

```

nat (inside) 1 access-list inside_nat_outbound

```

```
access-list inside_nat_outbound extended permit tcp host 172.17.40.70 host
200.185.36.43 eq http

global (outside) 1 172.31.242.69 netmask 255.255.255.255
```

It also has the following firewall rule, which matches the NAT settings:

```
access-list acl_inside extended permit tcp host 172.17.40.70 host
200.185.36.43 eq http

access-group acl_inside in interface inside
```

FortiConverter generates the following IP pool and NAT policy from the source configuration:

```
edit "ippool-172.31.242.69"
    set endip 172.31.242.69
    set startip 172.31.242.69
    set type one-to-one
next

edit 10003
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.17.40.70"
    set dstaddr "h-200.185.36.43"
    set service "HTTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
    set ippool enable
    set poolname "ippool-172.31.242.69"
next
```

The converted configuration is similar to when the source configuration specifies dynamic NAT with a NAT IP address.

FortiConverter converts the IP pool based on the dynamic NAT.

Static NAT matches policy source address

A source configuration has the following static NAT settings:

```
static (inside,outside) 200.251.129.95 172.17.60.85 netmask 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip host 172.17.60.85 object-group
Group_Destination

access-group acl_inside in interface inside
```

FortiConverter converts the static NAT rule to a VIP object and generates a NAT policy:

```
edit "vip-200.251.129.95"
    set extip 200.251.129.95
    set mappedip 172.17.60.85
    set extintf port2
```

```

    set nat-source-vip enable
next

edit 10004
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.17.60.85"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
next

```

The NAT-enabled policy tries to match the source address to a VIP object. If it finds a match, it performs static NAT as the VIP object specifies. Otherwise, it uses the interface IP for NAT.

Static NAT matches policy destination address

A source configuration has the following static NAT settings (which are the same as the example that matches by source address):

```
static (inside,outside) 200.251.129.95 172.17.60.85 netmask 255.255.255.255
```

It also has the following firewall rule:

```
access-list acl_outside extended permit ip any host 200.251.129.95
```

```
access-group acl_outside in interface outside
```

FortiConverter creates the same VIP object it does for the source address example, and the following NAT policy, which uses the VIP object as a destination address:

```

edit "vip-200.251.129.95"
    set extip 200.251.129.95
    set mappedip 172.17.60.85
    set extintf port2
    set nat-source-vip enable
next

edit 10005
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "all"
    set dstaddr "vip-200.251.129.95"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

```

Static NAT that uses access list matches policy source address

A source configuration has the following settings, which define static NAT using an access list:

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
access-list inside_nat_static extended permit ip host 10.100.128.97 object-
group Group_Destination
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip host 10.100.128.97 object-group
Group_Destination
access-group acl_inside in interface inside
```

FortiConverter converts the static NAT settings to the following VIP object and policies:

```
edit "vip-172.31.242.69_ip"
    set extip 172.31.242.69
    set mappedip 10.100.128.97
    set extintf port2
    set nat-source-vip enable
next

edit 10006
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-10.100.128.97"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
next
```

The NAT-enabled policy tries to match the source address to a VIP object. If it finds a match, it performs static NAT as the VIP object specifies. Otherwise, it uses the interface IP for NAT.

Static NAT specified by access list matches policy source address

The following source configuration settings define static NAT using an access list (they are the same as the example where static policy NAT matches the policy source address):

```
static (inside,outside) 172.31.242.69 access-list inside_nat_static
access-list inside_nat_static extended permit ip host 10.100.128.97 object-
group Group_Destination
```

It also has the following firewall rule, which matches the NAT in source address:

```
access-list acl_outside extended permit ip object-group Group_Destination host
172.31.242.69
access-group acl_outside in interface outside
```

FortiConverter creates the same VIP object it does for the source address example, and the following NAT policy, which uses the VIP object as a destination address:

```
edit "vip-172.31.242.69_ip"
    set extip 172.31.242.69
    set mappedip 10.100.128.97
    set extintf port2
    set nat-source-vip enable
next

edit 100007
    set srcintf "por2"
    set dstintf "port1"
    set srcaddr "Group_Destination"
    set dstaddr "vip-172.31.242.69_ip"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

edit 10007
    set srcintf "port2"
    set dstintf "any"
    set srcaddr "Group_Destination"
    set dstaddr "h-172.31.242.69"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next
```

NAT rule and policy addresses do not match exactly

When a NAT rule address does not match a policy address exactly, FortiConverter calculates where the addresses intersect (overlap) and uses the result as the address for the NAT policy it generates.

NAT rule address contains policy address

For example, a source configuration includes the following dynamic NAT configuration:

```
global (outside) 1 193.205.32.10 netmask 255.255.255.255
nat (inside) 1 10.1.2.0 255.255.255.0
```

It also contains the following firewall rule:

```
access-list acl_inside extended permit tcp host 10.1.2.1 host 193.205.23.66 eq
smtp
access-group acl_inside in interface inside
```

The NAT rule address 10.1.2.0 255.255.255.0 contains the firewall rule source address 10.1.2.1.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```
edit "ippool-193.205.32.0-193.205.32.255"
  set endip 193.205.32.10
  set startip 193.205.32.10
  set type one-to-one
next

edit 10001
  set srcintf "port1"
  set dstintf "port2"
  set srcaddr "h-10.1.2.1"
  set dstaddr "h-193.205.23.66"
  set service "SMTP"
  set schedule "always"
  set logtraffic disable
  set status enable
  set action accept
  set nat enable
  set ippool enable
  set poolname "ippool-193.205.32.10"
next
```

The source address of rule 10001 is the intersection of the NAT rule and original rule, which is "h-10.1.2.1".

Policy address contains the NAT rule address

A source configuration includes the following NAT settings (which are the same as the example where the NAT rule address contains the policy address):

```
global (outside) 1 193.205.32.10 netmask 255.255.255.255

nat (inside) 1 10.1.2.0 255.255.255.0
```

It also contains the following firewall rule:

```
access-list acl_inside extended permit tcp 10.1.0.0 255.255.0.0 host
193.205.23.66 eq smtp

access-group acl_inside in interface inside
```

The firewall rule source address 10.1.0.0 255.255.0.0 contains the NAT rule address 10.1.2.0 255.255.255.0.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```
edit "ippool-193.205.32.0-193.205.32.255"
  set endip 193.205.32.10
  set startip 193.205.32.10
  set type one-to-one
next

edit 00110002
  set srcintf "port1"
  set dstintf "port2"
  set srcaddr "n-10.1.2.0_24"
  set dstaddr "h-193.205.23.66"
  set service "SMTP"
  set schedule "always"
```



```

    set logtraffic disable
    set status enable
    set action accept
    set nat enable
    set ippool enable
    set poolname "ippool-193.205.32.10"
next

```

```

edit 10002
    set srcintf "port1"
    set dstintf "any"
    set srcaddr "n-10.1.2.0_16"
    set dstaddr "h-193.205.23.66"
    set service "SMTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

```

The policy 00110002 source address "n-10.1.2.0_24" is the intersection of NAT rule and firewall rule 10002.

NAT rule matches address "all" in policy

A source configuration includes the following NAT settings (which are the same as the example where the NAT rule address contains the policy address):

```

global (outside) 1 193.205.32.10 netmask 255.255.255.255
nat (inside) 1 10.1.2.0 255.255.255.0

```

It also contains the following firewall rule:

```

access-list acl_inside extended permit tcp any host 193.205.23.66 eq smtp
access-group acl_inside in interface inside

```

The source address field is "any", which contains the NAT rule.

FortiConverter converts the source NAT and firewall rules to the following IP pool and policies:

```

edit 00110003
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "n-10.1.2.0_24"
    set dstaddr "h-193.205.23.66"
    set service "SMTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
    set ippool enable
    set poolname "ippool-193.205.32.10"
next

edit 10003

```

```

    set srcintf "port1"
    set dstintf "any"
    set srcaddr "all"
    set dstaddr "h-193.205.23.66"
    set service "SMTP"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

```

The policy 00110003 source address "n-10.1.2.0_24" is the intersection of NAT and firewall rules.

Static NAT overlaps policy destination address

A source configuration has the following settings, which define static NAT using an access list:

```

static (inside,outside) 172.31.242.69 access-list inside_nat_static
access-list inside_nat_static extended permit ip host 10.100.128.97 object-
group Group_Destination

```

It also includes the following firewall rule:

```

access-list acl_outside extended permit ip object-group Group_Destination
172.31.242.0 255.255.255.0

access-group outside in interface outside

```

The firewall rule destination address 172.31.242.0 255.255.255.0 contains the static NAT mapped IP 172.31.242.69.

FortiConverter generates the following VIP object and policies that use the object as a destination:

```

edit "vip-172.31.242.69_ip"
    set extip 172.31.242.69
    set mappedip 10.100.128.97
    set extintf port2
    set nat-source-vip enable
next

edit 100004
    set srcintf "port2"
    set dstintf "port1"
    set srcaddr "Group_Destination"
    set dstaddr "vip-172.31.242.69_ip"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

edit 10004
    set srcintf "port2"
    set dstintf "any"
    set srcaddr "Group_Destination"
    set dstaddr "n-172.31.242.0_24"

```

```

    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

```

Static NAT overlaps address group object

A source configuration has the following settings, which define a static NAT using an access list:

```

static (inside,outside) 172.31.242.69 access-list inside_nat_static

access-list inside_nat_static extended permit ip host 10.100.128.97 object-
group Group_Destination

```

The access list destination address `Group_Destination` contains two members:

```

object-group network Group_Destination
  network-object 10.255.253.0 255.255.255.0
  network-object 10.255.254.0 255.255.255.0

```

The source configuration also has a firewall rule that matches the static NAT rule and its destination is a member of the group `Group_Destination`.

```

access-list acl_inside extended permit ip host 10.100.128.97 10.255.253.0
255.255.255.0

access-group acl_inside in interface inside

```

FortiConverter generates the following NAT policy, which has the destination address `10.255.253.0 255.255.255.0`.

```

edit 10009
  set srcintf "port1"
  set dstintf "port2"
  set srcaddr "h-10.100.128.97"
  set dstaddr "n-10.255.253.0_24"
  set service "ALL"
  set schedule "always"
  set logtraffic disable
  set status enable
  set action accept
  set nat enable
next

```

NAT exemption

NAT exemption is a dynamic policy NAT with ID 0. In most cases, you use NAT exemption to do one of the following:

- Exempt from NAT an address that is located in a NAT rule address range.
- In environments that use NAT control to block traffic to which no NAT rule applies, to permit this type of traffic.

Exempt an address from a NAT rule

A source configuration has the following NAT exemption configuration:

```
nat (inside) 0 access-list inside_nat_exemption

access-list inside_nat_exemption extended permit ip host 172.13.100.88 object-
group Group_Destination
```

It also has the following dynamic NAT rule:

```
nat (inside) 4 172.13.100.0 255.255.255.0

global (outside) 4 172.80.80.8 netmask 255.255.255.255
```

Both the NAT exemption and the dynamic NAT rule match the following firewall rule:

```
access-list acl_inside extended permit ip 172.13.100.0 255.255.255.0 object-
group Group_Destination

access-group acl_inside in interface inside
```

FortiConverter generates the following policies:

```
edit 00110001
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.13.100.88"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

edit 10001
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "n-172.13.100.0_24"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
    set nat enable
    set ippool enable
    set poolname "ippool-172.80.80.8"
next
```

The NAT exemption configuration generates policy 00110001 with no NAT behavior. The dynamic NAT configuration generates policy 10001, which references an IP pool. Because 00110001 comes first in the configuration, it applies to address "h-172.13.100.88" before the policy used for address "n-172.13.100.0_24" (which applies dynamic NAT) is applied.

Allowing traffic without NAT when PIX enables NAT control

When NAT control is enabled in PIX, traffic from an interface with high-level security to an interface with low-level security is not allowed if no NAT rule is configured. To allow traffic that does not require NAT, a NAT exemption is required.

The following NAT configuration is a source configuration, which includes NAT control and a NAT exemption:

```
nat-control

nat (inside) 0 access-list inside_nat_exemption

access-list inside_nat_exemption extended permit ip host 172.14.100.88 object-
group Group_Destination
```

It also has the following firewall rule:

```
access-list acl_inside extended permit ip 172.14.100.0 255.255.255.0 object-
group Group_Destination

access-group acl_inside in interface inside
```

The interface security level has the following configuration:

```
nameif ethernet0 outside security0
nameif ethernet1 inside security100
```

FortiConverter generates the following policies:

```
edit 00110002
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "h-172.14.100.88"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status enable
    set action accept
next

edit 10002
    set srcintf "port1"
    set dstintf "port2"
    set srcaddr "n-172.14.100.0_24"
    set dstaddr "Group_Destination"
    set service "ALL"
    set schedule "always"
    set logtraffic disable
    set status disable
    set action accept
    set comments "This policy is disabled as not allowed by NAT-Control."
next
```

The source interface of the firewall rule is "inside"(port1), which has security level 100. The destination interface of this firewall rule is calculated to be "outside"(port2), which has security level 0. Since "inside" has a higher security level than "outside", traffic from "n-172.14.100.0_24" to "Group_Destination" is not allowed if NAT is not configured (even if the firewall rule allows it). Only traffic from "h-172.14.100.88" to "Group_Destination" is allowed because a NAT exemption is configured for it. Since other traffic is not allowed, FortiConverter disables policy 10002, and adds a comment to show the reason.

Unused VIP objects generate policy

In some cases, the final policy in an output configuration is one that FortiConverter generates from VIP objects that are not used as a destination address in at least one policy. For example:

```
edit 001
    set srcintf "port1"
    set dstintf "any"
    set srcaddr "all"
    set dstaddr "vip- 172.21.84.24" " vip- 172.21.84.25" " vip- 172.21.84.26"
    set service "ALL"
    set schedule "always"
    set logtraffic all
    set status enable
    set action deny
    set comments "This policy is auto-generated by FortiConverter to activate static-NAT
    VIPs that are not referenced in other policies."
next
```

This type of policy enables the source static NAT mapping by capturing all the VIP objects that other policies do not reference.

In some conversions, FortiConverter generates more than one of this kind of policy – one for each external interface that is referenced by an unreferenced VIP object.

Cisco conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

Start Options

Setting	Description
Model	Select the model of the source configuration.
Output Format	Select the appropriate output format for your FortiGate device.
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.

Setting	Description
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Copy NAT merge policies to a separate text file	Specifies whether FortiConverter copies NAT merge policies to a separate text file named <code>PolicyMemo.txt</code> that lists the NAT rule intersections and the firewall policies they generated.
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Ignore firewall policies with <i>all</i> or <i>any</i> addresses when processing NAT rules	<p>Specifies whether FortiConverter ignores firewall policies with an "all" or "any" address when it merges a NAT rule and a firewall policy to create a FortiGate NAT policy.</p> <p>FortiConverter creates new policies in the output configuration based on where NAT rules to firewall policies intersect. Because firewall policies that use "all" or "any" as the address create many intersections, Fortinet recommends that you ignore them.</p>
More	<p>Displays additional start options. See Start Options - More on page 71.</p> <p>Available only when Model is PIX.</p>
Output Directory	Select the folder where the output configuration is saved.

Start Options - More

Setting	Description
Enable Route-based IPSec	Specifies whether Route-based IPSec is used for this conversion.
NAT Merge	

Setting	Description
NAT exemption merge depth	Specifies which types of NAT FortiConverter merges with the output firewall policies, or whether FortiConverter performs NAT merge based on object names or values.
Dynamic NAT merge depth	<ul style="list-style-type: none"> • Off – FortiConverter converts firewall policies only and does not perform NAT merge for this type of NAT. This is useful for performing a quick, initial conversion to discover any conversion issues. • Object Names – FortiConverter performs NAT merge based on matching address names in firewall policies and NAT rules. • Object Values – FortiConverter performs NAT merge based on matching address values in firewall policies and NAT rules. It generates the most accurate matching of NAT rules and policies, but in most cases, it also generates more NAT policies.
Dynamic ACL NAT merge depth	
Static NAT merge depth	Because it can take FortiConverter several hours to complete a conversion that include a large number of NAT rules, Fortinet recommends that you turn off or limit NAT merge for your initial conversion. Then, resolve any issues with the conversion before you run it again with NAT merge enabled.
Static ACL NAT merge depth	For more information, including sample matches, see NAT merge options on page 29 .

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.
	Select a route file that FortiConverter uses to determine the interfaces used in output policies, in addition to routes it detects in the source configuration.
Cisco Route File (Optional)	Because Cisco devices apply access-lists to source interfaces, FortiConverter can determine the source interfaces for output policies, but not the destination interfaces. When you specify a route file, FortiConverter uses the information in the file to determine the destination interface. Otherwise, it uses the "any" interface.

Context Selection

Map the virtual contexts in the source configuration to VDOMs in the output configuration.

By default, all virtual contexts are mapped to VDOMs with the same name. You can modify this default mapping as required by renaming VDOMs and removing virtual contexts from the conversion.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add <code>config global</code> and <code>config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

This page displays the logical interfaces that FortiConverter detects in the source configuration and the changes it makes to the associated physical interface and its naming.

You cannot use this page to modify the logical interface settings.

If required, you can use the Tuning page to modify logical interfaces and zones. See ["Tuning the FortiConverter output" on page 105](#).

Route Information

FortiConverter creates static routes in the output using the static routes it detects in the source configuration and any routing information you provide.

Double-click an item to edit it.

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

VPN Phase2

Setting	Description
IKE Phase1 (table column)	Select an IKE Phase1 authentication method: pre-share (preshared keys) or rsa-sig (RSA signatures).

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Fortinet conversion

Fortinet conversion wizard



The administrator password is **not** set on the new configuration.

For FortiGate conversions, maintainer account settings are not modified. If your original FortiGate has maintainer access disabled, you must re-enable access in the new device.

Start Options

Setting	Description
Conversion Mode	Convert is the only supported task.

Setting	Description
Output Format	<p>Select the type of output configuration that FortiConverter generates:</p> <ul style="list-style-type: none"> • FortiGate CLI – Files that contain the output configuration as CLI commands. You restore this configuration on the target appliance manually (for example, using the using the FortiOS Upload Bulk CLI Command File option). <p>Select Create a restorable config to output these CLI commands as a configuration file you can restore.</p> <ul style="list-style-type: none"> • FortiGate API – An output you restore to the target appliance directly from FortiConverter via the FortiGate API. FortiConverter also connects to the target appliance via the API to obtain interface information to use in the conversion process.
	<p>To allow FortiConverter to use the FortiOS API, ensure that TLSv1.0 is enabled on the target appliance.</p> <p>For example, use the following CLI commands to enable TLSv1.0:</p> <pre>config system global append admin-https-ssl-versions tlsv1-0 end</pre> <p>Use the following command to remove TLSv1.0 support:</p> <pre>config system global unselect admin-https-ssl-versions tlsv1-0 end</pre>
Output OS Version	Select the option that matches the OS to convert to.
Split VDOMs	Create an output configuration for each VDOM.
Create a restorable config	<p>Specify whether FortiConverter generates configuration files that you can restore to the target device directly, instead of scripts you upload using the FortiOS Upload Bulk CLI Command File option.</p> <p>When you select this option, FortiConverter creates a config file by appending the converted source configuration to the target default configuration. The output also includes any unconverted configuration and errors, which you can review using the <code>config-error-log</code> CLI command. For more information, see Reviewing errors in a restorable FortiGate configuration on page 128.</p>
Output Directory	Select the folder where the output configuration is saved.

Configuration

Setting	Description
Source Configuration File	Select the file for the configuration that your source FortiGate is running.
Target Device	<p>Do one of the following:</p> <ul style="list-style-type: none"> If Output Format is FortiGate CLI (on the Start Options page), select the target device's default configuration. <p>This is the device configuration before you perform any configuration tasks or after you restore the factory defaults.</p> <ul style="list-style-type: none"> If Output Format is FortiGate API (on the Start Options page), enter connection information for the target appliance. <p>FortiConverter obtains information about the appliance to help complete the conversion via the FortiOS API.</p>
Device IP	Enter the IP address of the target appliance.
User Name	Enter the user name for the target appliance.
Password	Enter the password for the target appliance.

VDOM Selection

Map the VDOMs in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (include <code>config global</code> and <code>config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a name or enter a custom interface name.

If you selected **FortiGate API** as the output format, the list of interfaces uses the names that FortiConverter retrieved from the target appliance. You can enter a different name, if required.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Additional Rule

Setting	Description
Add	Click to open a dialog box that allows you to select rules from the source configuration to add. See the illustration "Additional rule locator window".
Import	Click to load a set of rule changes from a text file.
Export	Saves the current set of rule changes to a text file.

Setting	Description
(rule table)	<ul style="list-style-type: none"> Property (first field) – The property of the rule. You can edit this value. Value (second field) – The property's value. You can edit this value. Action (list) – Select either Insert (adds the rule to existing rules), Modify (to change the rule), or Delete. Edit (pencil icon) – Opens the additional rule locator dialog box. Delete (trash can icon) – Removes the rule from the list.

Additional rule locator dialog box

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.

Tab	Description
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>For example, because of configuration changes since FortiOS 4.2, for earlier version, FortiConverter does not migrate Data Leak Prevention (DLP) settings.</p>

Setting	Description
View in HTML	<p>Generates an HTML page of the conversion result.</p> <p>For more information, see Viewing the results of your automatic conversion on page 103.</p>
Go to Output	<p>Opens the output folder.</p> <p>For more information, see Viewing the results of your automatic conversion on page 103</p>
Restore	<p>Restores the configuration to the target appliance you specified on the Configuration page.</p> <p>Before it restores the configuration, FortiConverter backs up the existing configuration on the target appliance and merges the new configuration with the existing one.</p> <p>When the appliance has rebooted after the restore is complete use the <code>config-error-log</code> CLI command to review any errors. For more information, see Reviewing errors in a restorable FortiGate configuration on page 128.</p> <p>Available only when Output Format is FortiGate API (on the Start Options page).</p>

Juniper conversion

Juniper ScreenOS or Junos OS differences

VLAN logical interfaces

FortiConverter recognizes interface names starting with "vlan" as logical interfaces.

Service objects

Junos OS service objects support MS-RPS and SUN-RPC, where program-numbers (SUN) and UUID (MS) are used instead of ports. FortiOS supports this configuration using Application Control with an application override.

Example of Junos service object conversion

```
config application list
edit "MS-ActiveDirectory"
config entries
edit 1
set application 152305667
config parameters
edit 1
set value "45f52c28-7f9f-101a-b52b-08002b2efabe"
next
edit 2
set value "811109bf-a4e1-11d1-ab54-00a0c91e9b45"
next
end
set action pass
next
end
next
end

edit 10012
set srcintf "trust"
set dstintf "mgn"
set srcaddr "MEI-Nov1-172.24.81.0-24" "MEI-Nov1-172.24.80.0-24" "MEI-Nov1-172.24.252.112-28"
set dstaddr "MEI-WAN"
set service "MS-ActiveDirectory"
set schedule "always"
set logtraffic all
set status enable
set action accept
set comments "95"
```

```
set application-list "MS-ActiveDirectory"
next
```

NAT support

For SRX Series gateways, FortiConverter supports the conversion of the following NAT types:

- Destination NAT
- Source NAT
- Static NAT

Juniper conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

By default, output configurations from Juniper do not include some configuration information, including address and service comments. For an example of how to include this information in the output, see [Including object comments in the output configuration on page 49](#).

Start Options

Setting	Description
Model	Select the model of the source configuration.
Output Format	Select the appropriate output format for your FortiGate device.
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.

Setting	Description
Adjust table sizes	You can customize the maximum table sizes that FortiMonitor uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Output Directory	Select the folder where the output configuration is saved.

Source Configuration Selection

Setting	Description
Source Configuration File	Select the input file or files.

LSYS (Junos OS) or VSYS (ScreenOS) Selection

Map the logical or virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add <code>config global</code> and <code>config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate interface for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	Allows you to review any objects that FortiConverter did not include in the conversion. If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

McAfee conversion

McAfee conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

Start Options

Setting	Description
Model	Sidewinder is the only model supported.
Output Format	FortiGate is the only supported output.
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Adjust table sizes	You can customize the maximum table sizes that FortiMonitor uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Output Directory	Select the folder where FortiConverter saves the output configuration.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.

VSYS Selection

Map the virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add <code>config global and config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.

Setting	Description
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Palo Alto Networks conversion

Palo Alto Networks OS (PAN-OS) differences

Conversion support

FortiConverter does not support the following features

- VPN
- IPv6 address ranges
- IPv6 address subnets (will be supported in a future release)
- UTM

NAT support

FortiConverter supports the conversion of Palo Alto Rule NAT only.

Configuration notes

- PAN-OS handles NAT and firewall policies with two separate modules, while FortiGate handles NAT within its policy module. FortiConverter makes a best effort attempt to map NAT rules onto each policy during the conversion, but you should review the results for accuracy.
- FortiConverter converts PAN-OS weekly schedules to FortiGate weekday schedules that are stored in a schedule group.

Palo Alto conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

Start Options

Setting	Description
Model	Palo Alto is the only model supported.
Output Format	FortiGate is the only supported output.

Setting	Description
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Ignore firewall policies <i>all</i> or <i>any</i> addresses	Specifies whether FortiConverter ignores addresses with an “all” or “any” address when it merges a NAT rule and a security rule to create a FortiGate NAT policy. (In most cases, this type of address matches anything.)
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Output Directory	Select the folder where FortiConverter saves the output configuration.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.

VSYS Selection

Map the virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add <code>config global</code> and <code>config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface (table column)	Click to assign a FortiGate port for each interface. Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

SonicWall conversion

SonicWall differences

Special characters

FortiGate reserves '#' (hash sign), '(' , and ')' (open and close curved brackets) as special characters. You cannot use them in the configuration unless an escape sequence precedes them. FortiConverter replaces these characters with the characters: '*' (star), '[' and ']' (open and close square brackets).

Examples:

- The address book "SNWL #1" becomes "SNWL *1".
- The service book "Citrix TCP (Session Reliability)" becomes "Citrix TCP [Session Reliability]".

Address book configuration

- On FortiGate address objects do not support MAC addresses. Therefore, the wizard does not migrate SonicWall MAC addresses.
- FortiConverter generates two extra address book entries: "Any" and "_Address_Null".
 - "Any" is added because it is a default address book in SonicWall.
 - FortiConverter generates "_Address_Null" because FortiGate address groups do not allow a group without any members. Only empty address groups can refer to "_Address_Null".

Service book configuration

- FortiConverter does not migrate SonicWall service objects that are predefined on FortiGate. For example, HTTP port 80 and HTTPS port 443.

Schedule configuration

- A SonicWall schedule group can contain only one "one-time" schedule and multiple "recur" schedules. The "one-time" schedule is an implicit object that you can embed in the schedule group. Because FortiGate defines each schedule group explicitly, FortiConverter automatically generates "one-time" schedules for the SonicWall implicit schedules.
- FortiGate time schedule configuration does not support "24:00" (equal to the next day's 00:00). It uses "00:00" instead. When FortiConverter converts a SonicWall "recur" time schedule such as "M 00:00 to 24:00", it sets the end time to "00:00".

Local User and User Group

- Because FortiConverter cannot parse the local user's password string, it sets all passwords to "123456".
- Unlike FortiConverter, SonicWall allows you to nest user groups. For example, in SonicWall, usergroup1 can be a member of usergroup1. FortiConverter removes any nested configurations.

Route configuration

- FortiConverter does not convert the VPN configuration, including a Tunnel Interface VPN (route-based VPN).
- FortiConverter does not convert automatically generated routes like connected route and host route.

Original source	Translated source	Original Destination	Translated Destination	Original Service	Translated Service
All Interface IP	X2 IP	Any	Original	Any	Original

Original source	Translated source	Original destination	Translated destination	Original service	Translated service
LAN Subnets	Original	WoW Static IP	X0 IP	SSLVPN	Original

Original source	Translated source	Original destination	Translated destination	Original service	Translated service
test_1112_grp	test_11_gw	test_12_gw	test_1211_grp	Echo	Original

Org Src	Tran Src	Org Dest	Tran Dest	Org Serv	Tran Serv
test_11_gw	test_12_gw	test_1112_grp	test_1211_grp	Echo	Original

SonicWall conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

By default, output configurations from SonicWall do not include some configuration information, including address and service comments. For an example of how to include this information in the output, see [Including object comments in the output configuration on page 49](#).

Start Options

Setting	Description
Model	SonicOS is the only model supported.
Output Format	Select the appropriate output format for your FortiGate device.

Setting	Description
Output OS Version	FortiOS 5.4 and 5.6 have different configuration syntaxes. Select the version that corresponds to the FortiOS version on the target.
Discard unreferenced firewall objects	<p>Specifies whether addresses, schedules, and services that are not referenced by a policy are saved and added to the output.</p> <p>This option can be useful if your target device has table size limitations.</p> <p>You can view the unreferenced objects that FortiConverter removed on the Conversion Result page.</p>
Ignore firewall policies with <i>all</i> or <i>any</i> addresses	<p>Specifies whether FortiConverter ignores firewall policies with an "all" or "any" address when it merges a NAT rule and a firewall policy to create a FortiGate NAT policy.</p> <p>FortiConverter creates new policies in the output configuration based on where NAT rules to firewall policies intersect. Because firewall policies that use "all" or "any" as the address create many intersections, Fortinet recommends that you ignore them.</p>
Include input configuration lines for each output policy	Specifies whether FortiConverter includes the input configuration lines used for each FortiGate policy in the FortiGate configuration as a policy comment.
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Output Directory	Select the folder where FortiConverter saves the output configuration.

Source Configuration

Setting	Description
Source Configuration File	Select the input file or files.

VSYS Selection

Map the virtual systems in the source configuration to VDOMs in the output configuration.

To select multiple items in the list, do one of the following:

- Select an item, and then Ctrl + click one or more additional items.
- Select an item, and then Shift + click an additional item. The items and any items between them are selected.

Setting	Description
Enable VDOM	Select to enable VDOMs (add <code>config global</code> and <code>config vdom</code> syntax) to the output config.
Add	Click to add a mapping item after you have deleted one.
Delete	Click to delete a mapping item.

Physical Interface Mapping

To select the appropriate FortiGate interface, click the value in the FortiGate Interface column, and then select a value or enter a custom interface name.

To edit other values in the Interface Mapping dialog box, including changing the interface from physical to aggregate or unspecified, double-click a column other than FortiGate Interface.

The Interface Mapping dialog box allows you to select the following interface types:

- **aggregate** – Select up to four aggregate interface members. If you need to add additional members, edit the `set members interface` setting in the output configuration or use the FortiOS web UI to add interfaces after you import the configuration.
- **unspecified** – FortiConverter uses the interface name in the conversion, but ignores the type and other attributes, which provides a name-to-name mapping without interface configuration.

For example, you can create resources such as VLANs, LAGs, and inter-VDOM links on the target FortiGate device before you import the conversion, and then reference those interfaces in the physical interface mapping.

You can also use the tuning page to create mappings, such as physical to VLAN, after the conversion is complete.

To delete an interface, select the entry and click **Delete**. This is useful if your target FortiGate has fewer interfaces than the source configuration.

Setting	Description
FortiGate Interface	Click to assign a FortiGate port for each interface.
(table column)	Enter a port name or custom text.
Import from file	Click to load a set of interface mappings from a text file.
Export current mappings	Saves the current set of interface mappings to a text file.
Add	Click to add a mapping item.
Edit	Click to edit additional properties for the selected mapping item.
Delete	Click to delete the selected mapping item.

VLAN and Loopback

This page displays the logical interfaces that FortiConverter detects in the source configuration and the changes it makes to the associated physical interface and its naming.

You cannot use this page to modify the logical interface settings.

If required, you can use the Tuning page to modify logical interfaces and zones. See ["Tuning the FortiConverter output" on page 105](#).

Route Information

Setting	Description
Add	Click to add a route.
Edit	Click to edit the selected route.
Delete	Click to delete the selected route.

Conversion Result

Tab	Description
Conversion Summary	Provides statistics about the conversion.
Policies Detected & Policies Created	Allows you to view and compare the number of objects that FortiConverter detected in the source configuration and the ones it created for the output configuration.
Messages & Warnings	<p>Allows you to review any objects that FortiConverter did not include in the conversion.</p> <p>If you enabled Discard unreferenced firewall objects on the Start Page, this tab displays the objects that FortiConverter removed.</p>

Setting	Description
View in HTML	Generates an HTML page of the conversion result.
Go to Output	Opens the output folder .
Go to Tuning	Opens the tuning page. See Tuning the FortiConverter output on page 105 .
Go to Report	Opens a detailed conversion report that includes a list of converted objects and policies and displays lines from the source configuration that FortiConverter did not convert.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Snort conversion

Snort conversion wizard



The administrator password is **not** set on the new configuration.

For third-party conversions, the trusted host settings are converted. Check the trusted host settings to ensure they allow management access from the relevant network interfaces.

Start Options

Setting	Description
Output FortiOS Version	Select the version that corresponds to the FortiOS version on the target.
Snort Rules	Select the input file.
No extra back slash "\"	FortiConverter will not add an extra back slash to the conversion.
Convert annotated rules as <i>status disable</i>	Select to disable rules that are annotated in the source configuration.
Adjust table sizes	You can customize the maximum table sizes that FortiConverter uses when Adjust table sizes is selected. For more information, see Adjusting table sizes on page 27 .
Snort Variable Definition	Optionally, select the Snort variable definition file (for example, <code>snort.conf</code>).
Output Directory	Select the folder where FortiConverter saves the output configuration.

Rule Variables

Setting	Description
IP Variables	Click a value to edit it, if required.
Port Variables	Click a value to edit it, if required.

Conversion Result

Setting	Description
Go to Output	Opens the output folder .
Go to Report	Opens an HTML page that displays the conversion mapping.

For more information, see [Viewing the results of your automatic conversion on page 103](#)

Viewing the results of your automatic conversion

The Conversion Result page displays general conversion information, statistics on of the number of converted objects and policies, and a log of items that need further attention.

To see a summary of the conversion, click **Go to Report**.

An HTML page generated by FortiConverter is displayed in your web browser.

The screenshot shows a web browser displaying the report-fwobject.html page. The page is titled "report-fwobject.html" and shows the file path "file:///C:/FortiConverterOutput/Output/SmartCenter/FMGR/FWObject/report-fwobject.html". The main content area is divided into two sections: "Address" and "config firewall address".

The "Address" section contains a table with two columns: "Name" and "Subnet/Range/FQDN". The table lists various converted objects and their corresponding IP addresses and subnets.

Name	Subnet/Range/FQDN
Amman_Gateway-gfe0-172.16.11.1	172.16.11.1/32
Amman_Gateway-gfe1-192.0.2.20	192.0.2.20/32
Amman_network	172.16.11.0/24
Berlin_Gateway-gfe0-10.100.102.254	10.100.102.254/32
Berlin_Gateway-gfe1-192.168.102.1	192.168.102.1/32
Berlin_IDS	192.168.102.49/32
Berlin_network	192.168.102.0/24
Budapest_Gateway-hme0-172.16.12.1	172.16.12.1/32
Budapest_Gateway-le0-192.168.12.1	192.168.12.1/32
Budapest_network	172.16.12.0/24
Chicago_network	192.168.133.0/24
Contractor_Gateway-gfe0-10.70.61.2	10.70.61.2/32
Contractor_Gateway-gfe1-192.168.10.54	192.168.10.54/32
Corporate-mail-server	172.16.2.2/32
Dallas_CVP	192.168.24.79/32
Dallas_DMZ	192.168.24.0/24
Dallas_Gateway_primary-hme0-192.0.2.253	192.0.2.253/32
Dallas_Gateway_primary-gfe1-192.168.130.253	192.168.130.253/32
Dallas_Gateway_primary-gfe2-10.10.111.253	10.10.111.253/32
Dallas_Gateway_primary-gfe3-192.168.24.253	192.168.24.253/32
Dallas_Gateway_primary-gfe4-10.255.255.253	10.255.255.253/32
Dallas_Gateway_secondary-hme0-192.0.2.254	192.0.2.254/32
Dallas_Gateway_secondary-gfe1-192.168.130.254	192.168.130.254/32
Dallas_Gateway_secondary-gfe2-10.10.111.254	10.10.111.254/32
Dallas_Gateway_secondary-gfe3-192.168.24.254	192.168.24.254/32
Dallas_Gateway_secondary-gfe4-10.255.255.254	10.255.255.254/32

The "config firewall address" section shows the corresponding FortiManager configuration snippets for each object listed in the table.

```

config firewall address
edit "Amman_Gateway-gfe0-172.16.11.1"
set subnet 172.16.11.1 255.255.255.255
next
edit "Amman_Gateway-gfe1-192.0.2.20"
set subnet 192.0.2.20 255.255.255.255
next
edit "Amman_network"
set subnet 172.16.11.0 255.255.255.255
next
edit "Berlin_Gateway-gfe0-10.100.102.254"
set subnet 10.100.102.254 255.255.255.255
next
edit "Berlin_Gateway-gfe1-192.168.102.1"
set subnet 192.168.102.1 255.255.255.255
next
edit "Berlin_IDS"
set subnet 192.168.102.49 255.255.255.255
next
edit "Berlin_network"
set subnet 192.168.102.0 255.255.255.255
next
edit "Budapest_Gateway-hme0-172.16.12.1"
set subnet 172.16.12.1 255.255.255.255
next
edit "Budapest_Gateway-le0-192.168.12.1"
set subnet 192.168.12.1 255.255.255.255
next
edit "Budapest_network"
set subnet 172.16.12.0 255.255.255.255
next
edit "Chicago_network"

```

To examine the converted objects and policies in detail, click **Go to Tuning**. A window that allows you to tune the output is displayed.

FortiConverter

Home Help Back Export Import Buy License VDOM: root Go to Report Goto Output

Policy Tuning NAT Merge Review Conversion Log

Policy

	Name	From	To	Source	Destination	Service	Action	Src...	IPPool	View
0	10000	inside;	any;	h-10.0.0.10;	all;	ANY;	deny	<input type="checkbox"/>		
1	10001	any;	port3;	h-2.1.1.72;	h-3.1.1.72;	ALL_ICMP;	accept	<input type="checkbox"/>		
2	10002	any;	port3;	n-2.1.1.0_24;	h-3.1.1.73;	HTTP;	accept	<input type="checkbox"/>		
3	200000	port3;	port1;	h-10.0.0.1;	h-20.0.0.1;	ANY;	ipsec	<input type="checkbox"/>		
4	200001	port3;	port1;	h-10.0.0.2;	h-30.0.0.1;	ANY;	ipsec	<input type="checkbox"/>		

Firewall Objects

Address Subnet

	Name	IP	Netmask	PolicyRef.
0	h-10.0.0.1	10.0.0.1	255.255.255.255	2
1	h-10.0.0.10	10.0.0.10	255.255.255.255	2
2	h-10.0.0.2	10.0.0.2	255.255.255.255	2
3	h-2.1.1.72	2.1.1.72	255.255.255.255	2
4	h-20.0.0.1	20.0.0.1	255.255.255.255	2
5	h-3.1.1.72	3.1.1.72	255.255.255.255	2
6	h-3.1.1.73	3.1.1.73	255.255.255.255	2
7	h-30.0.0.1	30.0.0.1	255.255.255.255	2
8	n-2.1.1.0_24	2.1.1.0	255.255.255.0	2
	Click to Enter a New Entry	0.0.0.0	255.255.255.255	0

After your review and any tuning tasks are complete, click **Go to Output** to access the final, converted configuration files.

Tuning the FortiConverter output

Although FortiConverter attempts to automatically convert as much of the source configuration as possible, in some cases, your input is required to complete the conversion. The Tuning page allows you to tune the results for your environment. To access the Tuning page, on the Conversion Result page, click **Go to Tuning**.

When you navigate to the Tuning page for the first time, FortiConverter prompts you to save the current output (the initial conversion). This backed-up conversion allows you to revert or refer to the initial conversion later, if needed.

If you are running the trial license, you can use the Tuning page to review your conversion, which is helpful if you are evaluating FortiConverter.



To quickly view a tuning "snapshot" (a configuration that you exported from the tuning page earlier), open the wizard for the appropriate vendor, click **Tuning** on any page, and then navigate to the snapshot file to import it.

You can add, modify, or delete firewall policies and objects, as well as interfaces and zones. FortiConverter applies any modifications you make immediately.

Toolbar options

Item	Description
Home	Click to return to the main page.
Help	Click to open the latest version of this guide.
Back	Click to return to the Conversion Result page. FortiConverter preserves any changes but does not save them in an output file. (Use Go to Report to save changes to an output file.)
Backup	Click to save the current configuration, including any modifications, to a text file (a tuning "snapshot").
Restore	Click to import a configuration you exported earlier (a tuning "snapshot"). FortiConverter discards any changes in the current configuration.
Export Policies	Click to export policies as a comma-separated values (CSV) format file. This can be helpful if you want to work in a spreadsheet application, share the conversion with a team of reviewers, or import bulk changes.
Import Policies	Click to import policies from a comma-separated values (CSV) format file. FortiConverter replaces the current policies with the ones in the CSV file and rebuilds the relationship between the policies and objects.

Item	Description
VDOM	Select the VDOM in the output to display in the Tuning page.
Go to Report	Click to view the configuration output in HTML format. The report included converted and non-converted objects and a summary of the conversion.
Go to Output	Click to view the files for the current configuration, including any modifications.

Policy Tuning tab

The Policy Tuning tab allows you to review output policies and converted objects.

To review output policies, in the Policy navigation pane, select a package. The converted policies in the package are displayed.

Policy	Name	From	To	Source	Destination	Service	Action	SrcN...	IPPool
default	1634	dmz;	DMZ-NETFLOW;	all;	host_10.39.253.213;	ANY;	accept	<input type="checkbox"/>	
	635	1635	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.39.217.136;	tcp4100;	accept	<input type="checkbox"/>
	636	1636	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.39.248.82;	tcp_1521;	accept	<input type="checkbox"/>
	637	1637	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.32.172.49;	junos-ftp;	accept	<input type="checkbox"/>
	638	1638	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.40.93.86; host_1...	tcp_1521;	accept	<input type="checkbox"/>
	639	1639	DMZ-NETFLOW;	untrust;	h-10.39.253.213;	host_211.138.207.235;	udp50040;	accept	<input checked="" type="checkbox"/>
	640	1640	DMZ-NETFLOW;	untrust;	host_10.39.253.213; NE...	host_211.138.207.235;	udp50040;	accept	<input type="checkbox"/>
	641	1641	DMZ-NETFLOW;	untrust;	h-10.39.253.213;	host_221.131.176.12; ho...	udp-161;	accept	<input checked="" type="checkbox"/>
	642	1642	DMZ-NETFLOW;	untrust;	host_10.39.253.213;	host_221.131.176.12; ho...	udp-161;	accept	<input type="checkbox"/>

To add a new policy to a package

1. Right-click a policy, and then click **New**.
2. Complete the settings, and then click **OK**.

To renumber the policies

1. Right-click the policy where you want the numbering to restart, and then click **ConfigPolicyIndex**.
2. For **Set Policy Index Start With**, enter the initial policy number to use, and then click **OK**.

635	1635	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.39.217.136;	tcp4100;	accept	<input type="checkbox"/>	
▶ 636	1636	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.39.248.82;	tcp_1521;	accept	<input type="checkbox"/>	
637	1637	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.32.172.49;	junos-ftp;	accept	<input type="checkbox"/>	
638	1638	DMZ-NETFLOW;	dmz;	host_10.39.253.213;	host_10.40.93.86; host_1...	tcp_1521;	accept	<input type="checkbox"/>	

To edit the details for a converted policy

Double-click the policy and edit the settings as required.

Policy Edit Form ✕

Name

From

▼

To

▼

Source

▼

Destination

▼

Service

▼

Shchedule

▼

accept

▼

Log Allowed Traffic

disable

▼

Status

enable

▼

☐ Enable NAT

☒ Use Interface

☐ Use IPPool

Comments

Label

OK

Cancel

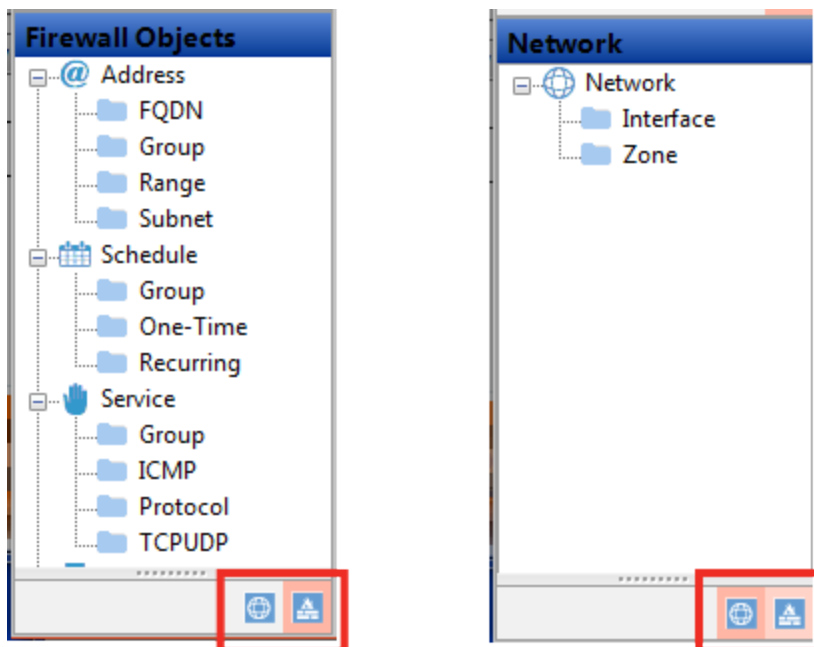
Item	Description
Name	You cannot edit this value.
From	Select source interface(s).
To	Select destination interface(s).
Source	Select source address object(s).
Destination	Select destination address object(s).
Service	Select service object(s).

Item	Description
Schedule	Select schedule object. – select to enable NAT , and then select to use Interface or IPPool Comments – modify the comments for the policy Label – modify the label of the policy
Action	Specify whether traffic is accepted or denied.
Log Allowed Traffic	Specify whether logging is enabled.
Status	Specify whether the policy is enabled.
Enable NAT	Select to enable NAT , and then do one of the following: <ul style="list-style-type: none"> • Select User Interface. • Select Use IPPool and specify a pool.
Comments	Edit the comments for the policy.
Label	Edit the label for the policy.

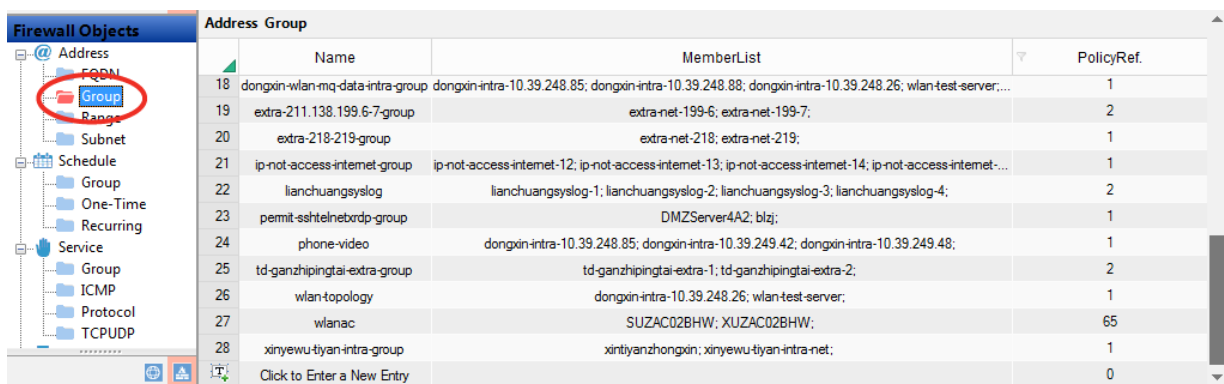
To review and edit firewall objects and interfaces

1. Go to the navigation pane at the bottom-left of the Policy Tuning tab.

Click the icons at the bottom of the pane to switch between firewall objects and interfaces.



- To view objects, select a category in the navigation pane.



Firewall Objects		Address Group		
		Name	MemberList	PolicyRef.
18	dongxin-wlan-mq-data-intra-group	dongxin-intra-10.39.248.85; dongxin-intra-10.39.248.88; dongxin-intra-10.39.248.26; wlan-test-server...		1
19	extra-211.138.199.6-7-group	extra-net-199-6; extra-net-199-7;		2
20	extra-218-219-group	extra-net-218; extra-net-219;		1
21	ip-not-access-internet-group	ip-not-access-internet-12; ip-not-access-internet-13; ip-not-access-internet-14; ip-not-access-internet...		1
22	lianchuangsyslog	lianchuangsyslog-1; lianchuangsyslog-2; lianchuangsyslog-3; lianchuangsyslog-4;		2
23	permit-sshtelnetrdp-group	DMZServer4A2; blzj;		1
24	phone-video	dongxin-intra-10.39.248.85; dongxin-intra-10.39.249.42; dongxin-intra-10.39.249.48;		1
25	td-ganzhipingtai-extra-group	td-ganzhipingtai-extra-1; td-ganzhipingtai-extra-2;		2
26	wlan-topology	dongxin-intra-10.39.248.26; wlan-test-server;		1
27	wlanac	SUZAC02BHW; XUZAC02BHW;		65
28	xinyewu-tiyan-intra-group	xintiyanzhongxin; xinyewu-tiyan-intra-net;		1
	Click to Enter a New Entry			0

- To add a new object, scroll to the bottom of the list, click in an empty row, and then complete the fields as required.

28	xinyewu-tiyan-intra-group	xintiyanzhongxin; xinyewu-tiyan-intra-net;	1
	Click to Enter a New Entry		0

- The PolicyRef column displays the number of policies that reference that firewall object.

Click the PolicyRef. column for the entry to display the specific policies in the Policy table above.

You cannot delete objects that are referenced by any other part of the configuration.

To filter rows to display only matching data

You can filter every column that has the [filter mark] by a given option or custom expression.

To delete a line of the configuration

Click the policy or object you want to delete to select it, and then press the Delete key on your keyboard.

You cannot delete items that are used by another policy or group.

To reorder rows

To reorder rows, click the policy number and drag the row to the new position.

NAT Merge Review tab

Currently, the NAT Merge Review tab allows you to review of the NAT policy conversion logic for Juniper Junos OS and Check Point conversions only.

Junos NAT Merge Review

You can use the sub-tabs in the top-right corner to select the NAT category to display: Source NAT, Destination NAT, Static NAT, Object NAT, Double NAT, and NAT Rule. The source configuration determines which categories are available.

Go to home ? Go to help Exit Back Export Import root Generate Report

Policy Tuning **NAT Merge Review** Conversion Log

Static NAT Source NAT **Destination NAT**

Destination NAT Rule Set *

Rule Name	From	Source	Destination	Service	IP Pool/Interface
96-101-2222240-248-10-22	dmz:	-	211.139.96.101/32	-	pool-248-10-22

Security Rule

No.	Name	From	To	Source	Destination	Service	Action	Schedule	Status
0	bst_v5mq	untrust	dmz	any	host_10.39.249.42	TCP21000-21004	permit	always	Enabled
1	shujucaiji	untrust	dmz	host_221.181.240...	host_10.39.248.70	UDP3055	permit	always	Enabled
2	policy-051	untrust	dmz	dongxin-netflow-ex...	dongxin-netflow-int...	dongxin-netflow-ar...	permit	always	Enabled
3	tousu-ftp	untrust	dmz	net218.206.87.12...	dmz-248-73	tcp41400-41413	permit	always	Enabled
4	shoujizhongduan	untrust	dmz	any	host_10.40.103.230	tcp8888	permit	always	Enabled
5	dongxin-wlan-syslo...	untrust	dmz	dongxin-wlan-cha...	dongxin-intra-10.3...	tcp_514	permit	always	Enabled
6	PK-zhishiku	untrust	dmz	any	host_10.40.102.17	junos-http	permit	always	Enabled
7	BOSCH-manager	untrust	dmz	any	host_10.39.248.114	tcp_18081	permit	always	Enabled

To display a particular rule set from the source configuration, for **Destination NAT Rule Set**, select the appropriate value.

Destination NAT Rule Set *

The top pane of the NAT Merge Review tab is a list of NAT rules from the source configuration. Double-click a NAT rule to display the corresponding items in the Security Rule list (bottom pane).

Double-click a security rule to open the Merge Result window.

SecurityRuleRelativePanel

Merge Result

NAT Rule Entry											
	Type	Rule Set/Rule	From	To	Orig. Source	Orig. Dest	Orig. Service	Trans. Source	Trans. Dest	Trans. Service	
▶	Source	source-nat-1/rule...	dmz	untrust	10.0.0.0/8	0.0.0.0/0	-	pool1-4	-	-	

Security Rule Entry											
	No.	Name	From	To	Source	Destination	Service	Action	Schedule	Status	
▶	129	v5vBooce	dmz	untrust	host_10.39.248.70; host_10.40.102.67	112.25.20.88	TCP8000-8003	permit	always	Enabled	

Fortigate Policy Entry											
	Name	From	To	Source	Destination	Service	Action	SrcNAT	IP Pool		
▶	100480	dmz	untrust	host_10.39.248.70; host_10.40.102.67	112.25.20.88	TCP8000-8003	accept	enabled	pool1-4		
	10129	dmz	untrust	host_10.39.248.70; host_10.40.102.67	112.25.20.88	TCP8000-8003	accept	disabled	-		

Merge Summary

```

Comparing "from" field between Junos Source NAT rule and security rule...

Source NAT Rule :
  From zone [ dmz ]

Policy :
  From zone [ dmz ]

==> Result :
  Policy and Source NAT Rule "from" field overlapped
-----

Comparing "to" field between Junos Source NAT rule and security rule...

Source NAT Rule :
  To zone [ untrust ]

Policy :
  To zone [ untrust ]

==> Result :
  Policy and Source NAT Rule "to" field overlapped

```

The Merge Result window displays the NAT rule, the security rule, and the resulting FortiGate policies.

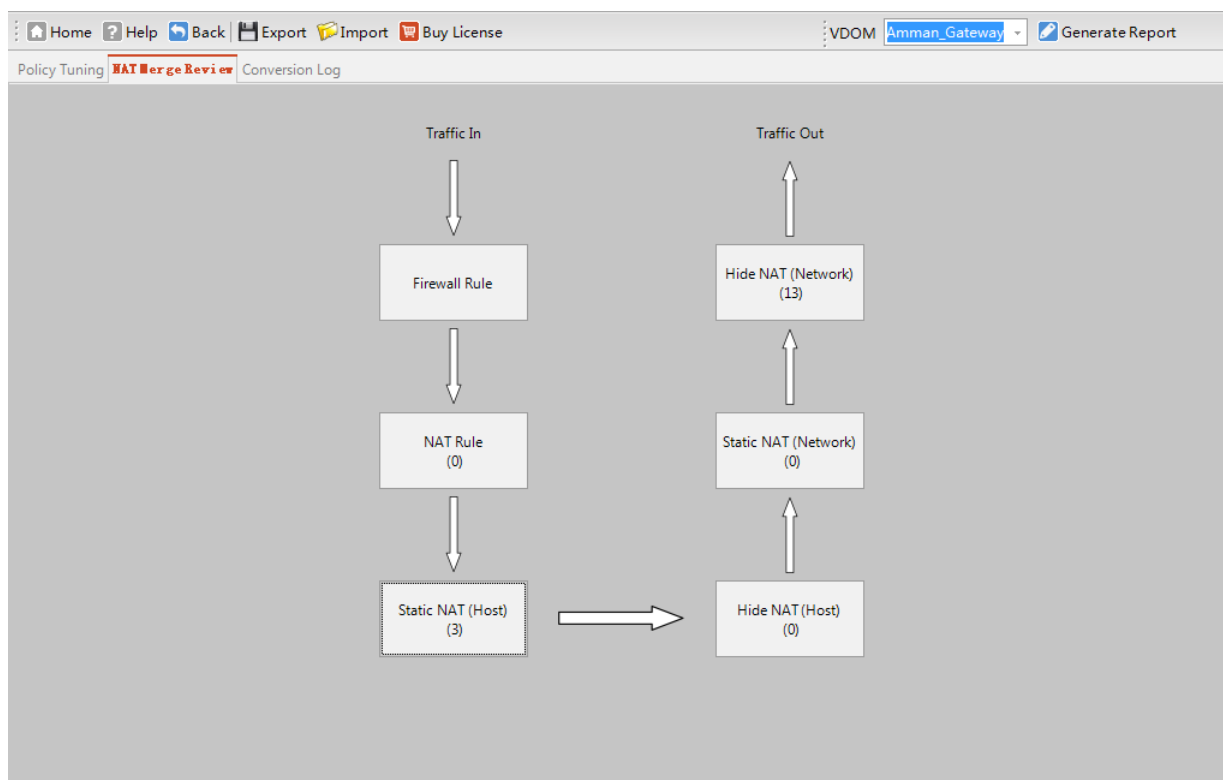
Policies that FortiConverter generated from a security rule from the source configuration have a five-digit name that is 10000 or higher .

Policies that FortiConverter generated by merging a NAT rule and security rule from the source configuration have a six-digit name that is 100000 or higher.

The Merge Summary provides a step-by-step description of the merge logic.

Check Point NAT Merge Review

For Check Point, the NAT merge review tab displays the different NAT types as tiles in a diagram.



Click a tile to access the NAT rules and merge logs for that NAT type.

NAT Merge Review

Hide Network Nat

Name	Real Address	Mapped Address
Amman_network	172.16.11.0/24	interface
Berlin_IP_Pool	10.199.3.254-10.199.3.254	interface
Berlin_network	192.168.102.0/24	10.100.102.254
Budapest_network	172.16.12.0/24	10.133.12.1
Dallas_IP_Pool	10.199.1.1-10.199.1.254	interface
Dallas_admin_network	172.31.255.0/24	interface
London_network	192.168.103.0/24	interface
Madrid_network	192.168.110.0/24	interface
NY_network	192.168.100.0/24	interface
Paris_IP_Pool	10.199.2.1-10.199.2.254	interface

Check Point Rule

View	Rule Base	Name	Source Address	Destination Add...	Service	Action	Schedule	Status	Firewall
View Merge	Standard	10000	gGateway1_of_G...	Any	Authenticated	accept	Any	Enabled	Any
View Merge	Standard	10001	Any	Any	gUnWanted	drop	Any	Enabled	Any
View Merge	Standard	10002	Primary_Manage...	All_Intranet_Gate...	ident; NBT; bootp	drop	Any	Enabled	Any
View Merge	Standard	10003	Primary_Manage...	All_Intranet_Gate...	Any	drop	Any	Enabled	Any
View Merge	Standard	10004	Any	Any	Any	accept	Any	Enabled	Any

Click a network name, and then click **View Merge** to display detailed information about the input and output rules.

Check Point Nat Merge To Check Point Rule Rule Summary

Input

Check Point Nat										
Type	Name	Real Address	Mapped Address							
Hide Network	Amman_network	172.16.11.0/24	interface							

Check Point Rule										
Rule Base	Name	Source Address	Destination Add...	Service	Action	Schedule	Status	Firewall	User	
star_local	10033	world_internal_ne...	Any	Allowed_policy_v2	"Client Auth"	Any	Enabled	Any	-	

Output

FortiGate Nat Policy From Merging Check Point Nat and Check Point Rule										
View	Name	From	To	Source	Destination	Service	Action	IPPool		
View Summary	100066	any	any	Amman_network	Amman_network	Allowed_policy_v.2	accept	-		
View Summary	100067	any	any	Amman_network	all	Allowed_policy_v.2	accept	source		

To view conversion log information about the merge, click **View Summary**.

NatMergeSummaryTextDialog										
Comparing "source address" field between Check Point Hide NAT rule and policy...										
Hide NAT Rule :										
Object Name [Amman_network]										
Policy :										
Source Address [world_internal_networks]										
==> Result :										
Policy "source address" and NAT Object field overlapped										
Detail address overlap information:										
NAT Object:										
[Amman_network]										
Expanding NAT Object...										
"Amman_network" is not expandable										
Policy Source Address:										
[world_internal_networks]										
Expanding Policy Address Book...										
"world_internal_networks" expand to [Amman_network;										
Berlin_network;										
Budapest_network;										
Chicago_network;										
Dallas_RnD_network;										
Dallas_admin_network;										
Dallas_network;										
London_network;										
Paris_network;										
Tokyo_network]										
Copy Text										
Close										

Conversion log tab

The Conversion Log tab displays warnings that FortiConverter generated during the conversion process.

Policy Tuning NAT Merge Review Conversion Log				
	Level	Time	From	Content
0	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node0 -> system
1	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node0 -> snmp
2	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node1 -> system
3	Warning	2015-04-27 18:39:26.736	Common	Unsupported groups -> node1 -> snmp
4	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.130.170/32
5	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.248.29
6	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 10.39.249.173
7	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.110
8	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.110/32
9	Warning	6:39 PM	Address	Remove unreferenced address ipmask object 211.103.0.15
10	Warning	6:39 PM	Address	Remove unreferenced address ipmask object Agent
11	Warning	6:39 PM	Address	Remove unreferenced address ipmask object BV\$forDMZIP
12	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetAgent
13	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetDMZ-Ugate
14	Warning	6:39 PM	Address	Remove unreferenced address ipmask object CmnetUgate
15	Warning	6:39 PM	Address	Remove unreferenced address ipmask object DMZtest211.103.0.87
16	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNET
17	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNET-REPORT
18	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPNETDX
19	Warning	6:39 PM	Address	Remove unreferenced address ipmask object IPnet_211.103.0.16
20	Warning	6:39 PM	Address	Remove unreferenced address ipmask object ISA
21	Warning	6:39 PM	Address	Remove unreferenced address ipmask object JTKH-REMOTE1
22	Warning	6:39 PM	Address	Remove unreferenced address ipmask object JTKH-REMOTE2
23	Warning	6:39 PM	Address	Remove unreferenced address ipmask object VMWARE-DMZ
24	Warning	6:39 PM	Address	Remove unreferenced address ipmask object VMWARE-WIN2003

Importing your new configuration into FortiGate

Conversion to FortiGate output

When you convert a source configuration to a FortiGate configuration, FortiConverter puts the conversion result in your output directory's FGT/ folder. This folder contains the conversion reports in HTML and the CLI configuration in the text file `config-cmd.txt`.

The `config-cmd.txt` file header contains basic import instructions. The converted objects and policies are located after the header and can consist of several thousand lines of configuration.

Preparing the output configuration file for import

Before you import the output configuration, search the file for any comments that indicate issues that FortiConverter detected during the conversion (such as missing objects or conflicting object values) and fix them. To locate these comments, search for lines that start with `#` (number/hash symbol). You cannot successfully import the configuration if you do not fix these issues.

Fortinet recommends that you divide the configuration into sections, and then import one section at a time. If a section is large, divide it into smaller sections.

Importing the configuration file sections

To import the sections of the output configuration file, Fortinet recommends that you use the **Upload Bulk CLI Command File** option at one of the following locations:

- **System > Config > Advanced** (FortiOS 5.2)
- **System > Advanced** (FortiOS 5.4 and 5.6)

Because you cannot successfully import a section of configuration that references an object that does not already exist in the configuration, ensure that you import the configuration sections in their original order. For example, you typically import policies last because they reference interfaces, addresses, users, services, IPsec phase1s, security policies, and so on. If these objects are missing, FortiGate does not accept the policy.

CLI debugging

To make troubleshooting easier when there are import errors, before you import sections, enable CLI debugging.

By default, CLI debugging is level 3. This is the level to use under normal conditions.

You can use the following command to view the current debug level:

```
# diagnose debug info
```

A response similar to the following information is displayed:

```
debug output: disable
console timestamp: disable
console no user log message: disable
CLI debug level: 3
```

For the configuration importing process, the appropriate debug level is 8. Use the following command to change the debug level:

```
diag debug enable
diag debug CLI 8
```

When the import process is complete, use the following command to return the debug level to the default (3):

```
diag debug reset
```

Importing process

Import the sections of the conversion output systematically. For each section you import, check for import failures in the web UI Script Execution History. Use CLI debugging to diagnose and fix any errors. When the web UI indicated the import is completely successful, continue with the next section of the configuration.



Example import error and troubleshooting

The following simple configuration generates an error because Test3 is not defined:

```
config firewall address
  edit "Test1"
    set subnet 1.1.1.1 255.255.255.255
  next
  edit "Test2"
    set subnet 1.1.1.2 255.255.255.255
  next
end
config firewall addrgrp
  edit "Test-Addresses"
    set member "Test1" "Test2" "Test3"
  next
end
```

When you save this configuration as a file and import it, the web UI displays the status Failure:

Script Execution History (past 10 scripts)

 Delete			
Name	Type	Time	Status
test-config.txt	Local	2016-03-08 16:03:51	 Failure




The following CLI output captures detailed information about the error:

```
0: config firewall address
0: edit "Test1"
0: set subnet 1.1.1.1 255.255.255.255
0: next
0: edit "Test2"
0: set subnet 1.1.1.2 255.255.255.255
0: next
0: end
0: config firewall addrgrp
0: edit "Test-Addresses"
-3: set member "Test1" "Test2" "Test3"
1: next
0: endwrite config file success, prepare to save in flash
```

The error code `-3` indicates that FortiGate did not find the object and the return code `1` indicates that an error occurred.

Notice that FortiGate creates the address objects Test1 and Test2. The failure status in the web UI only relates to the address group.

When you fix the script by adding the missing Test3 object and import it again, the web UI displays the status Success.

 Delete			
Name	Type	Time	Status
test-config.txt	Local	2016-03-08 16:32:00	 Success
test-config.txt	Local	2016-03-08 16:03:51	 Failure

When the configuration is fixed, all the return codes in the CLI debugging are `0`, which indicates no errors.

```
0: config firewall address
0: edit "Test1"
0: set subnet 1.1.1.1 255.255.255.255
0: next
0: edit "Test2"
0: set subnet 1.1.1.2 255.255.255.255
0: next
0: edit "Test3"
0: set subnet 1.1.1.3 255.255.255.255
0: next
0: end
0: config firewall addrgrp
0: edit "Test-Addresses"
0: set member "Test1" "Test2" "Test3"
0: next
0: endwrite config file success, prepare to save in flash
```

Importing your new configuration into FortiManager

The example in the procedures uses FortiManager 5.2 and global policies and objects. The procedures are similar for environments that do not use the global feature.

To configure FortiManager

On FortiManager, enable the ADOM feature and create an ADOM for each source domain that you want to migrate.

Ensure that all the ADOMs (including the global ADOM) use the same version of FortiOS.

Name	Type	Device	VPN Management
▼ Central Management (4)			
FortiCarrier	FortiCarrier 5.2		Policy & Device VPNs
MyADOM	FortiGate 5.2		Policy & Device VPNs
root	FortiGate 5.2		Policy & Device VPNs
Global Database	Global 5.2		

The output folder

The output folder provides both a global folder and a folder for each source domain. Both folders contain the subfolder `FMGR\`.

Object configuration is located in the `FMGR\FWObject\` folder, which contains the following files:

- Several text and HTML files that are used for reporting. They are not used to import the configuration.
- The text file `config-all`, which contains all the CLI commands for the object configuration.
- Text files that duplicate sections of the `config-all` file: `address`, `address groups`, `services`, `scheduled`, and so on. When there are many objects (for example, most environments have many firewall address objects), these sections are divided into multiple, indexed files. To make the import process simpler, Fortinet recommends that you import configurations using the files for individual sections.

Policy scripts are located in policy package folders in `\FMGR\Policy` as one or more firewall policy files (`config-firewall-policy-1`, `config-firewall-policy-2`, and so on). These files are the same content as the conversion output file `config-all` in smaller, indexed files that are easier to import.

Running scripts

With the exception of `config-system-session-helper`, you run all scripts using the **Policy Package, ADOM Database** script target.

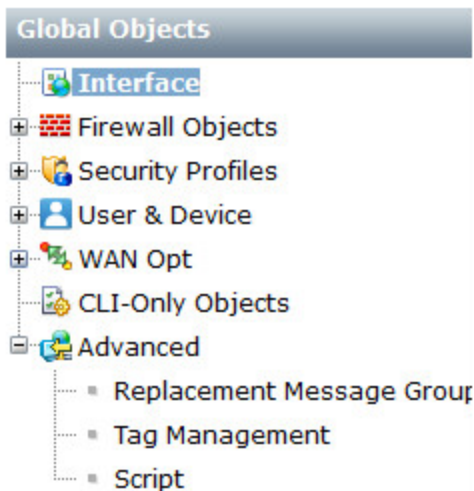
You run the `config-system-session-helper` script on the device database to set device-level settings.

If the global folder contains a `config-system-session-helper` script, review its contents. In most cases, it is not required because the global policies and objects configuration does not contain devices. You can add any configuration in this script to session helper scripts for each domain that uses the global objects. However, in most cases, the domain-level script also contains these settings.

To import policies and objects

You import your global object and policies first because the ADOM configuration can depend on them. Import objects before policies because policies depend on objects.

1. In the FortiManager system settings, to enable scripts, go to **System Settings > Admin > Admin Settings**. Under **Display Options on GUI**, select **Show Script**.
2. To display the scripts in the Global Objects menu, on the Policy & Objects tab, go to **Tools > Display Options > All On**.
3. Go to **Global Objects > Advanced > Script**.



The list of global scripts is displayed.

4. Click **Import**, enter a name for the script you are importing, and then click **Browse** to navigate to and select a script from the `Global\FMGR\FWObject` folder.

For more information on the output folders and files, see [The output folder on page 118](#).

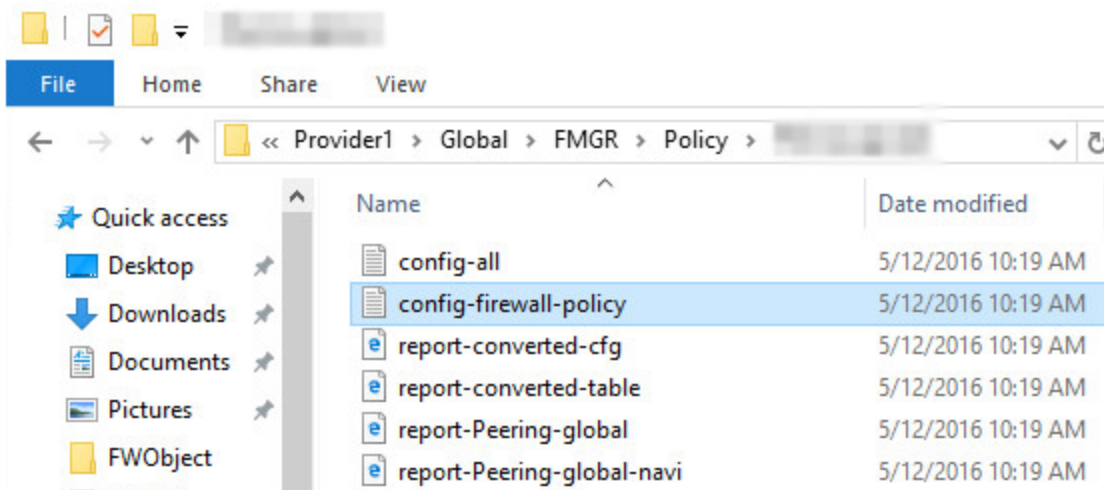
5. For the script target, select **Policy Package**, **ADOM Database**, and then select **OK**.
6. When the import is complete, review any error messages that FortiConverter inserted as comments and make any required corrections. For more information, see [To troubleshoot script import and execution errors on page 122](#).
7. To run the script, right-click it, and then select **Run**. Because global objects are applied to all ADOMs by default, for **Run script on policy package**, you can use the default policy package.

If the script execution fails, troubleshoot the process and make any required changes. For more information, see [To troubleshoot script import and execution errors on page 122](#).

8. Repeat the script import and run process for all the scripts in the `Global\FMGR\FWObject` folder.

Global Objects	Create New		Import
<div><div>Interface</div><div>Firewall Objects</div><div>Security Profiles</div><div>User & Device</div><div>WAN Opt</div><div>CLI-Only Objects</div><div>Advanced<ul style="list-style-type: none">Replacement Message GroupTag ManagementScript</div></div>	Name	Type	Target
	gaddgrp	CLI	Policy Package, ADOM Database
	gaddress	CLI	Policy Package, ADOM Database
	gservice	CLI	Policy Package, ADOM Database
	gsrvgrp	CLI	Policy Package, ADOM Database
	gusrgrp	CLI	Policy Package, ADOM Database
	gusrsrv	CLI	Policy Package, ADOM Database

9. When you have imported all the objects, use the same procedures to import and run the policy scripts using the firewall policy configuration files located in the `Global\FMGR\Policy` folder, which contains a folder for each policy package. Do not import the `config-all` file.



After the scripts have run successfully, review the policies.

Global Policy									
IPv6 Policy									
Assignment									
Seq.#	Status	Source Interface	Destination Interface	Source	Destination	Schedule	Service	Authentication	Action
Header Policy (Policy 1 - 31 / Total 31)									
Global Rules (Policy 1 - 31 / Total 31)									
1	✓	* any	* any	* gall	g	* galways	gALL		Deny
2	✓	* any	* any	DNS	D	* galways	gdns		Accept
3	✓	* any	* any	Glo	C	* galways			Accept
4	✓	* any	* any	* gall	g	* galways			Accept

Name	Type	Target	Comments	Last Modified
gaddrp	CLI	Policy Package, ADOM Database		2016-05-20 02:19:28
gaddrss	CLI	Policy Package, ADOM Database		2016-05-20 02:33:35
gpolicy	CLI	Policy Package, ADOM Database		2016-05-20 06:30:21
gservice	CLI	Policy Package, ADOM Database		2016-05-20 02:22:27
gsrvgrp	CLI	Policy Package, ADOM Database		2016-05-20 02:31:03
gusrgrp	CLI	Policy Package, ADOM Database		2016-05-20 02:37:31
gusrsvr	CLI	Policy Package, ADOM Database		2016-05-20 02:36:39

10. When the policy package is correct, assign it to your ADOM. By default, FortiManager assigns the selected policy package to all policy packages in the ADOM.

Add ADOM to Global Policy Package(MyADOMglobal)

ADOMs

☐ Specify ADOM policy packages to exclude

11. To complete the ADOM assignment, on the Assignment tab, click **Assign**.

Global Policy									
IPv6 Policy									
Assignment									
Add ADOM Edit ADOM Delete Select All Assign Selected									
ADOMs	Status	ADOM Policy Packages						Action	
MyADOM	Pending changes	All Policy Packages						[Assign]	

12. When the process of assigning the polices and objects is complete, on the Policies & Objects tab, select the ADOM to review the policies.

Global Policy									
IPv6 Policy									
Assignment									
Add ADOM Edit ADOM Delete Select All Assign Selected									
ADOMs	Status	ADOM Policy Packages						Action	
MyADOM	Pending changes	All Policy Packages						[Assign]	

Global Policy									
IPv6 Policy									
Assignment									
Add ADOM Edit ADOM Delete Select All Assign Selected									
ADOMs	Status	ADOM Policy Packages						Action	
MyADOM	Pending changes	All Policy Packages						[Assign]	

Global Policy									
IPv6 Policy									
Assignment									
Add ADOM Edit ADOM Delete Select All Assign Selected									
ADOMs	Status	ADOM Policy Packages						Action	
MyADOM	Pending changes	All Policy Packages						[Assign]	

13. To import the domain-level policies and objects into your ADOM, on the Device Manager tab, select the ADOM, and then go to **Scripts > Script**.

14. Repeat the procedure for importing the object and policy scripts with the contents of the `<domain_name>\FMGR\FWObject` and `<domain_name>\FMGR\Policy` folders. Import the objects first.

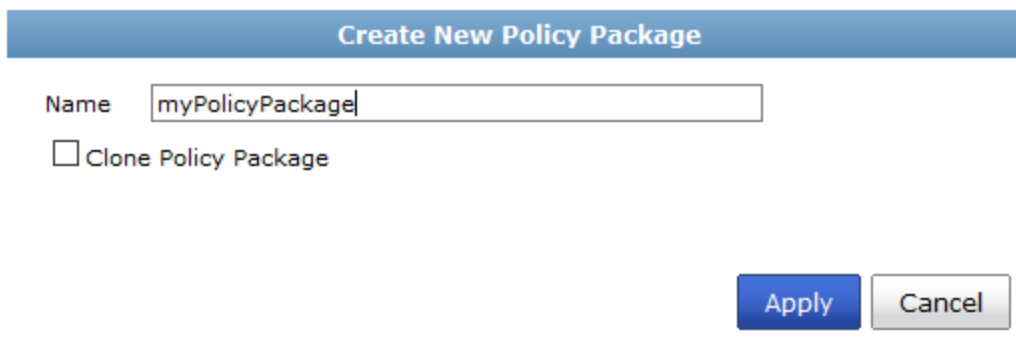
Do not import the `config-system-session-helpers` script. For the script target, select **Policy Package, ADOM Database**.

Ensure you check for error messages that FortiConverter inserted as comments and make any required corrections. For more information, see [To troubleshoot script import and execution errors on page 122](#).

15. Run each imported object script. For **Run script on**, select **Policy Package, ADOM Database**. Correct any errors that prevent the script from executing. For more information, see [To troubleshoot script import and execution errors on page 122](#).

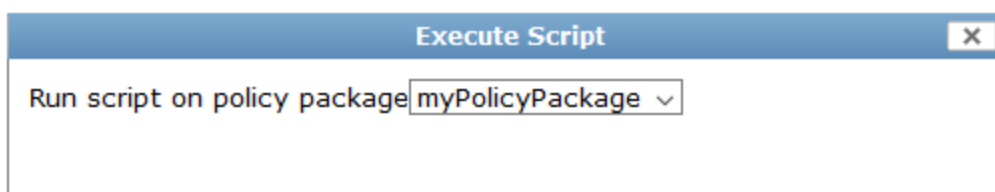
If there are many address objects, you import several scripts because the address file is indexed to keep the files at a manageable size. For more information, see [Working with object output in indexed files on page 125](#).

16. Before you run the policy scripts, create new policy packages that correspond to each policy package folder in `<domain_name>\FMGR\Policy`. On the Policy & Objects tab, right-click on the default policy package and choose **Policy Package Create New**. Clear the **Clone Policy Package** option.



Because global policies and objects were assigned to all policy packages in this ADOM, they are automatically part of each new policy package. The next import task adds the domain-level policies.

17. On the Device Manager tab, run each imported policy script. For **Run script on**, select **Policy Package, ADOM Database**. When you are prompted for a policy package, select the name of the appropriate package, which you created earlier.



Correct any errors that prevent the script from executing. For more information, see [To troubleshoot script import and execution errors on page 122](#).

To troubleshoot script import and execution errors

FortiConverter inserts any error messages in output scripts as comments.

In some cases, the script cannot run unless you edit it to correct the errors. Double-click the name of the script in the list of scripts to edit it.

Edit CLI Script - gaddress

Script Name	gaddress
Comments	Write a comment 0/255
Run Script on	Policy Package, ADOM Database
Script Detail	<pre> config firewall address edit "Am set sub next edit "Am set sub next edit "Am set sub next edit "Am set sub next edit "Am set sub next </pre>

In the following example, the address objects that generate the errors are assigned using the global objects and can be ignored.

```

next
edit "
set n
# Error: Undefined address object "
next
edit "gv
set me
# Error: Undefined address object "ge
next
edit "globa
set memb
# Error: Undefined address objec
next
end

```

If an error occurs during script execution, go to **System Settings > Task Monitor** to view the error message and identify the error. Look for "Failed to commit to DB" in the task information.

FortiManager-VM64

Device Manager | Policy & Objects | FortiGuard | **System Settings**

System Settings | Delete | View: All

ID	Source	Description	User	Status
62	Script Execution	Run Script	admin	✓
<p>< prev 1 next > (1 of 1)</p> <p>Total:1 Pending:0 In Progress:0 Completed (✓ Success:1 ⚠ Warning:0 ✖ Error:0)</p> <p>1 rootp(gservice) ✓ Script gservice executed on policy package default. View Script E</p> <p>< prev 1 next > (1 of 1)</p>				
61	Script Execution	Run Script	admin	✓
60	Script Execution	Run Script	admin	✓
59	Script Execution	Run Script	admin	✓
58	Script Execution	Run Script	admin	✓
57	Script Execution	Run Script	admin	✓
56	Script Execution	Run Script	admin	✓
55	Script Execution	Run Script	admin	✓
54	Script Execution	Run Script	admin	✖
53	Script Execution	Run Script	admin	✓
52	Script Execution	Run Script	admin	✖

Unlike a FortiGate import, which creates an object up to the point of failure, FortiManager creates no objects or policies if the script execution fails.

If you identify the cause, correct it in your script.

For example, the following error was generated by a firewall policy that contained both IPv4 and IPv6 objects, which FortiOS does not support and FortiConverter did not correct.

```
Failed to commit to DB, reason(command(set global header policy.1073741852:dstaddr "IP-1" "IP-200"))
Running script(gpolicy) on DB failed
----- The end of log -----
```

Another example of a script execution error generates the following message:

```
edit "Con
Failed to commit to DB, reason(syntax error)
Running script(address1) on DB failed
----- The end of log -----
```

To resolve the error, determine which object precedes the error, locate it in the script, and correct any configuration errors. In this example, the configuration does not specify the subnet. If an object you do not want to use generates the error, you can delete it from the script or use # (hash) at the start of the appropriate lines to convert them to comments. Then, try to run the script again. Repeat the troubleshooting process until the script execution is successful.

If there is no obvious error in the output, try dividing the script into two smaller scripts. If only one script runs successfully, you have narrowed the focus of your troubleshooting to the content of the failed script. To divide a script, right-click it and select **Clone**. Using the policy numbers to determine and keep track of which policies you delete, edit the files so that they each contain a different section of the script. Then, run both scripts.

Dividing scripts into two or more smaller scripts is also useful if you suspect the length of a script is causing the execution to fail. Scripts that are too long fail without generating an error message.

In some cases, if a script fails, Fortinet recommends that you create a new script instead of editing or deleting it, because sometimes files can remain after you delete it. If you preserve the failed script, you can review it and the error it generates later. In the following example, the following `config user server` objects took several attempts to run successfully.

service1	CLI	Policy Package, ADOM Database
service2	CLI	Policy Package, ADOM Database
session-helper	CLI	Device Database
user-servera	CLI	Policy Package, ADOM Database
user-serverb	CLI	Policy Package, ADOM Database
user-serverc	CLI	Policy Package, ADOM Database

Working with object output in indexed files

In some cases, output files are split into smaller, indexed files to make it easier to import them.

Devices & Groups	Create New		Import
	Name	Type	Target
Provisioning Templates	address1	CLI	Policy Package, ADOM Database
Scripts	address10	CLI	Policy Package, ADOM Database
	address11	CLI	Policy Package, ADOM Database
Script	address12	CLI	Policy Package, ADOM Database
	address13	CLI	Policy Package, ADOM Database
	address14	CLI	Policy Package, ADOM Database
	address15	CLI	Policy Package, ADOM Database
	address2	CLI	Policy Package, ADOM Database
	address3	CLI	Policy Package, ADOM Database
	address4	CLI	Policy Package, ADOM Database
	address5	CLI	Policy Package, ADOM Database
	address6	CLI	Policy Package, ADOM Database
	address7	CLI	Policy Package, ADOM Database
	address8	CLI	Policy Package, ADOM Database
	address9	CLI	Policy Package, ADOM Database

If a configuration contains nested groups, script execution can fail because groups defined in one file are dependent on groups defined in another file.

If a script fails because of a missing dependency, remove the object that causes the failure. When you have finished importing the scripts for the object type, delete the script you edited and import it again. Then, run the script without editing it. Because the dependency is now included in the imported configuration, the unedited script can execute successfully.

Troubleshooting

Licensing

Accessing conversion logs

Troubleshooting application crashes

Reviewing errors in a restorable FortiGate configuration

Licensing

FortiConverter is a single-user application. Using more than one user account may invalidate the Hardware ID. If multiple users require the application, Fortinet recommends that you install it using a single, shared account, on a remotely accessible host.

A hardware layer change will generate a new hardware identifier. For a physical host, this could occur when installing the application on a new laptop, or installing a memory extension or a new network card. For a virtual host, such as VMware, the hardware identified may change because of an update in the virtualization software, or because of a change to the virtual hardware configuration for that virtual host.

Windows updates may on occasion affect the hardware id, particularly .Net framework updates.

If your license does change, please contact customer services, cs@fortinet.com, include your serial number, previous hardware identifier, and new hardware identifier. They will update your FortiCare records and you will be able to download the replacement license from the support portal.

Accessing conversion logs

In most cases, when FortiConverter has an internal problem, the application displays a message in the web UI and adds an error message to a log file.

The logs capture all the conversion steps, including initialization, parsing (two logs), conversion, and reporting.

If the log indicates that FortiConverter encountered an internal error, or for help resolving other errors, contact the FortiConverter team at forticonverter@fortinet.com.

Log location

The logs are stored at the following default location (ProgramData is a hidden folder):

```
C:\ProgramData\Fortinet\FortiConverter\logs\<date>
```

where <date> is the day the log was generated. For example, 2016-04-25.

Example logs

Logs are plain-text files. These examples have additional formatting to illustrate the different steps and highlight errors.

Successful Juniper ScreenOS conversion

Info:

2016-04-25 16:58:10.2853

MainWizardPanel.btnStart_Click => MainWizardPanelPresenter.Initialize =>
ConverterManager.MakeANewConversionJob

Start a New Conversion: Juniper

Info:

2016-04-25 16:58:17.6680

BackgroundWorker.OnDoWork => VdomWizardPresenter._vsysPhaseCallWorker_DoWork =>
VdomConvertJob.DoConvertForGetVDOM

Parse VDOM: C:\Users\user\Desktop\Test Case Base\ScreenOS\test_sos.txt

Info:

2016-04-25 16:58:18.8052

BackgroundWorker.OnDoWork => JuniperWizardPresenter._firstPhaseCallWorker_DoWork =>
ConvertJob.DoConvertForFirstPhase

Parse: C:\Users\user\Desktop\Test Case Base\ScreenOS\test_sos.txt

Info:

2016-04-25 16:58:22.7495

BackgroundWorker.OnDoWork => VdomWizardPresenter._secondPhaseCallWorker_DoWork =>
ConvertJob.DoConvertForSecondPhase

Convert

Info:

2016-04-25 16:58:23.6636

ConvertJob.DoConvertForSecondPhase => ConvertJob.DoConvertForThirdPhase =>
ConvertJob.DoConvertReportPartial

Report: FGT

Failed Cisco conversion

The error message at the end of this example log indicates that FortiConverter encountered an internal error.

Info:

2016-03-29 18:59:33.8553

MainWizardPanel.btnStart_Click => MainWizardPanelPresenter.Initialize =>
ConverterManager.MakeANewConversionJob

Start a New Conversion: Cisco

Info:

2016-03-29 18:59:41.3151

```
BackgroundWorker.OnDoWork => VdomWizardPresenter._vsysPhaseCallWorker_DoWork =>
CiscoConvertJob.DoConvertForGetVDOM
```

Parse VDOM: C:\Users\user\Desktop\test_cisco.txt

Info:

2016-03-29 18:59:48.5378

```
BackgroundWorker.OnDoWork => CiscoWizardPresenter._firstPhaseCallWorker_DoWork =>
CiscoConvertJob.DoConvertForFirstPhase
```

Parse: C:\Users\user\Desktop\test_cisco.txt

Info:

2016-03-29 19:00:00.0919

```
BackgroundWorker.OnDoWork => MainWizardPanelPresenter._secondPhaseCallWorker_DoWork =>
ConvertJob.DoConvertForSecondPhase
```

Convert root

Error:

2016-03-29 19:00:38.1278

```
InterfaceALL.UpdatePolicyReference => InterfaceCollection.UpdatePolicyReference =>
PolicyOrg.HasReferencedInterface
```

Reference interface failed: Object reference not set to an instance of an object.

Troubleshooting application crashes

In many cases, disabling NAT merge options can resolve an application crash that occurs during a conversion.

For example, for a Cisco PIX conversion, on the wizard's Start Option page, click **More**, and then for each type of NAT, select **Off**.

You can use the FortiConverter logs to access detailed information about the cause of a crash. See [Accessing conversion logs on page 126](#).

Reviewing errors in a restorable FortiGate configuration

When you select the wizard's **Create a restorable config** option, FortiConverter creates a config file by appending the converted source configuration to the target default configuration.

The output also includes any unconverted configuration items and errors, which you can review using the `config-error-log` CLI command.


```
diagnose debug config-error-log read
>>> "set" "dlp-sensor" " " @ 7717:firewall.policy.101000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7732:firewall.policy.102000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7747:firewall.policy.103000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7762:firewall.policy.104000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7777:firewall.policy.105000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7792:firewall.policy.106000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7807:firewall.policy.107000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7824:firewall.policy.108000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7839:firewall.policy.149000:value parse error (error -3)
>>> "set" "dlp-sensor" " " @ 7854:firewall.policy.149999:value parse error (error -3)
```

In many cases, one failed object causes many lines of output because the configuration uses it in multiple places.

The error log provides a line number that helps you to locate a command associated with the problem. To help you understand the problem, try entering the command in the CLI.

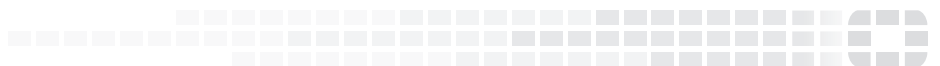
In the example, because of significant configuration changes since FortiOS 4.2, FortiConverter does not migrate Data Leak Prevention (DLP) settings from 4.3 to 5.2 and instead records the errors.

Common errors include the following codes:

- -651 – Input value error. The CLI command is incorrect.
- -3 – Entry not found (see the illustration). The value given, such as a profile name, is not configured..



High Performance Network Security



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